RECOMMENDATIONS FOR UPDATING THE ALASKA DEPARTMENT OF TRANSPORTATION CONSTRUCTION PROJECT DOCUMENTATION MANUAL

A

PROJECT

Presented to the Faculty

of the University of Alaska Anchorage

in Partial Fulfillment of the Requirements

for the Degree of

MASTER OF SCIENCE

By

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Anchorage, Alaska

May 2015

RECOMMENDATIONS FOR UPDATING THE ALASKA DEPARTMENT OF TRANSPORTATION CONSTRUCTION PROJECT DOCUMENTATION MANUAL

By

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PM 686B Final Course Deliverables Submission

The following guidance is intended to clarify the requirements contained in the PM686B Capstone Project syllabus.

For your final PM 686B Course Deliverables, you will be provided with two binders by the PM Department that each include colored pages to separate the key sections of the final report as outlined below. One completed binder will be submitted to the department; one will be retained by you. The binder that you submit with your final PM 686B deliverables is due on the date specified in the syllabus, should include the following, and should be organized in separate sections as follows:

Tab #1: Final Project Report

1. Final written project report (20-35 pages). Formatted to PMI standard.
    a. Abstract and Keywords
    b. Literature review results
    c. Research Method/Approach (detailed description)
    d. Analysis
    e. Results
    f. Conclusions
    g. Recommendations for further research
    h. Other sections as needed
2. Appendices. Separate from final written project report. These should not be included in 20-35 page count.
    a. Product(s) of project (e.g., templates, tools, business plan, etc.) for product-oriented project
    b. Research data (e.g., survey used, raw data, detailed analysis, graphics, etc.) for research-oriented project
    c. Other detailed exhibits as appropriate

Tab #2: Final Project PowerPoint Presentation (print out)

Tab #3: Project Lessons Learned Narrative (2-3 page narrative of your lessons learned from conducting this project)

Tab #4: Selected Knowledge Areas (3-4 page narrative of which selected KA's you chose, why you chose them and how they were used to demonstrate your mastery of the knowledge areas and to enhance your project results).

Tab #5: Updated Project Management Plan (current, updated version of your project management plan that includes all necessary subsidiary plans, approved changes, and necessary items (e.g., WBS, updated Gantt, Requirements Traceability matrix, , Risk Register, Stakeholder Register, etc.)

Tab #6: Project Charter (with necessary updates)

Tab #7: Letters from Project Sponsors

Tab #8: Digital media files containing a complete set of the contents of the binder. A labeled, blank CD will be provided by the department.

In addition to submitting the CD with your binder, you must post all of same files organized in this same structure in a single Zip file to the designated "Final Deliverables" folder in Blackboard.

Any member of the PM Department Administrative Support staff is prepared to assist you in understanding and complying with these deliverables submission requirements, and to make the process as efficient as possible for you.

Raymond O'Neill

From: Sharilyn Mumaw
Sent: Monday, April 27, 2015 6:23 PM
To: Roger Hull; Seong Dae Kim; Raymond O'Neill
Subject: IRBNet Board Action

Please note that University of Alaska Anchorage IRB has taken the following action on IRBNet:

Project Title: [590306-4] Capstone Project to Produce a Procedures Manual for Documenting Construction Administration Principal Investigator: Raymond O'Neill, MSPM

Submission Type: Closure/Final Report
Date Submitted: April 26, 2015

Action: ACKNOWLEDGED
Effective Date: April 27, 2015
Review Type: Exempt Review

Should you have any questions you may contact Sharilyn Mumaw at simumaw@uaa.alaska.edu.

Thank you,
The IRBNet Support Team

www.irbnet.org

Capstone Project Final Report

University of Alaska Anchorage
PM 686B, Spring 2015

Recommendations for Updating the AKDOT Construction Project Documentation Manual

Raymond O'Neill, MSPM Student
Roger Hull, Advisor

Draft Revisions

Version Number	Revision Date	Revision Notes	Reviewed By		
#1	October 14, 2014	Table of Contents			
#2	February 27, 2015	PM686B – Spring 2015 PPM#2 Resubmitted TOC			
#3	March 23, 2015	First draft submission Spring 2015 PPM#3			
#4	April 4, 2015	Re-submitted PPM#3 Draft			
#5	April 8, 2015	Re-submitted PPM#3 Draft			
#6	April 10, 2015	Final Report PPM#4			

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1 ABSTRACT AND KEY WORDS

This project began as work sponsored by a multidisciplinary engineering consulting firm providing construction administration services to the State of Alaska Department of Transportation & Public Facilities (AKDOT). Managers in the firm's construction administration department requested documentation protocols to assist staff in meeting their clients' quality assurance objectives and improve the firm's business performance.

Construction administration (CA) refers to managing all project-related functions between parties to a construction contract. CA involves considerable field presence and construction experience. CA includes inspections, quality assurance, site safety, and other construction duties beyond contract administration (Fisk & Reynolds, 2006).

The consultant's AKDOT quality assurance assessments indicate the need for improved project documentation, and project managers realize that improved documentation processes are necessary for effective monitoring, controlling and closing of construction projects.

The original scope of this project was to deliver a manual for documenting CA; however, research uncovered existing AKDOT manuals addressing documentation processes for CA. Therefore, the project delivers recommendations for updating the AKDOT *Construction Project Documentation* procedures manual published by Central Region AKDOT (AKDOT 2013). This manual is one of the resources identified as a reference for CA staff providing CA documentation.

The research plan includes methods to identify areas of CA documentation where improvements will be recommended. The research consists of a survey of CA professionals, formal and informal interviews, and a literature review.

Recommendations for updating the AKDOT *Construction Documentation Manual* are provided that will improve documentation quality and project communications, and will reduce the effort currently required for project closeout.

1.1 KEY WORDS

Alaska Dept. of Transportation Construction Quality

Documenting Construction Administration

Quality Construction Administration

Alaska Dept. of Transportation Construction Administration

Alaska Construction Quality Management

Construction Administration Quality Management

Alaska Dept. of Transportation Construction Communication

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project focused on those reference materials issued by the AKDOT Central Region headquarters in Anchorage.

3.1 CONSTRUCTION DOCUMENTS & DOCUMENTING CONSTRUCTION

Construction documents describe a specific body of material that will have been produced in the planning and design phases of a project. These documents will be the basis for construction contract agreements, payment schedules, agency coordination, and public information in the case of AKDOT and other public sector construction. Construction documents include construction plans, specifications, standard drawings, bid tabulation, cost estimates, schedules, permits and other details that have been accepted and agreed upon by parties to the contract and internal stakeholders.

Construction documentation, for purposes of this project, referrs to how project developments are documented throughout the execution, monitoring and control, and closing phases of a construction project rather than the plans and specification construction documents described above.

As a construction project is executed there are aspects of administration that require documentation, which is the focus of this study. "To fulfill their contract administration responsibilities, the Project Engineer and project staff are responsible for establishing and maintaining a system of accurate and complete records covering all project activities." (AKDOT, 2012).

3.2 CONSTRUCTION ADMINISTRATION (CA)

> *Construction administration* (CA) is [the term] used to refer to the responsibility of relating all project-related functions between the parties to a contract – not only the traditional contract administration duties, but also the conduct of the parties, relations with the contractor, communications, business systems, procedures, responsibility, authority, and duties of the parties, documentation requirements, construction operations, planning and scheduling, coordination, materials control, payment administration change orders and extra work, dispute claim handling, negotiations, and all project closeout functions. (Fisk & Reynolds, 2006)

Alaska's concentrated construction season requires intensive construction administration resources and the AKDOT contracts with local consulting firms to provide additional staff for construction administration. This may include project managers, project engineers, office engineers, inspectors and technicians. Construction administration staff that is hired under contract through a consulting firm is required to adhere to the CA systems that AKDOT has established. Frequently the consulting staff is made up of former AKDOT employees with extensive experience with long standing, familiar practices.

3.2.1 Roles & Responsibilities

This section provides general descriptions of the roles and responsibilities of AKDOT construction administration staff. These definitions are relatively generic and the titles used may vary somewhat within the construction industry and across various public and private sector organizations providing CA.

This discussion is intended to provide insight for the recommendations. Additional information about specific construction activities and CA roles can be found in the literature sources cited in Appendix A.

2 INTRODUCTION

This project's initiating sponsor, a veteran construction professional leading a construction administration (CA) consulting firm, says that, "…well-defined documentation protocols are needed for staff working on State of Alaska Department of Transportation & Public Facilities (AKDOT) construction projects." This observation is based on reports of poor quality assurance reviews done by the client's quality assurance staff, a lack of project status information coming to project managers from field offices during construction administration, and the amount of time and resources required gathering information for closing out projects.

This project researched current practices to identify recommendations that will:

- Improve the ***quality*** of project administration
- Improve project ***communication***
- Improve the project ***closeout*** process

As specific CA documentation tasks have been evaluated in the research they've been aligned with these three areas for improvement: quality, communication, and project closeout.

This project identifies the existing literature that defines AKDOT documentation protocols and develops recommendations for improving the procedures literature. Recommendations specific to improving the AKDOT Central Region *Construction Project Documentation* manual are delivered, along with related general recommendations.

This project included research to identify the tools and technologies employed by construction administration professionals working with AKDOT. The research identified documentation tasks significant to CA. Survey respondents were also asked to identify reference resources they use to guide CA documentation efforts.

In order to focus on the significant outcomes of the survey the Pareto analysis (also known as the "80-20 rule") is used to parse the highest, and in some cases the lowest, scoring elements of survey data.

3 LITERATURE REVIEW RESULTS

Initial project research included a literature review of industry standards and AKDOT-specific publications, standards, policies, etc.

General reference material regarding construction administration and government agency standards has also been reviewed in order to inform the research and analysis. AKDOT-specific literature has been sourced from AKDOT Central Region Headquarters, from searches of AKDOT websites, and from contractor project libraries and contractor reference resources.

AKDOT Statewide Design and Engineering provides an online source of AKDOT-specific reference material, produces manuals and training tools for construction administration, and provides a repository for policy and procedures documents[1]. The AKDOT Statewide Design and Engineering division is a resource for disseminating department policy statewide, and publishes several documents that were reviewed as research.

AKDOT regions throughout the state (*Northern Region, Central Region, and Southcoast (Southeast) Region)* also produce regionall-specific policy and procedures documents. This

[1] The mission of Statewide Design & Engineering Services is to provide technical services to the Department, and other state and federal agencies and governments. Statewide Design & Engineering Services: http://www.dot.state.ak.us/stwddes/

Future analysis of the survey data produced by this research could focus specifically on responses given by any one of the specific roles described here. It will be helpful to introduce these roles and responsibilities.

3.2.1.1 Project Manager

The project manager will be a management professional with construction and contract administration experience. He will have contract authority and be directly responsible to an AKDOT project or regional construction manager. The project manager will, ideally, have access to institutional knowledge and will likely be responsible for multiple construction projects. The project manager is ultimately responsible for the quality of construction administration.

The project manager is not expected to have a daily on-site presence but will be available to travel to the construction site on short notice if required by the AKDOT construction manager. The project manager will most likely be located in Anchorage or an office near an AKDOT regional office. The project manager depends on communication from the field offices and will have a direct line of communication with the project engineer. It is critical that project information is communicated to the project manager, and identifying how to improve this communication through improved documentation procedures is an objective of this research project.

3.2.1.2 Project Engineer

The project engineer is responsible for ongoing construction activities including progress of the work, site safety, traffic control, permitting, near-term schedules, and changes to the construction plans and specifications. The project engineer is also responsible for working with construction office staff to ensure the quality of the CA documentation.

The project engineer is responsible for periodic construction reports to the project manager and other construction managers. The project engineer's reporting serves as a record of project activities and should be supported by and derived from the other CA documentation that is developed during the reporting period.

The project engineer is expected to review and approve inspection documents from other CA staff and has primary authority for a project's CA activities, including documentation, in the construction project office.

3.2.1.3 Office Engineer

The office engineer has the most impact on documentation efforts and will be responsible for organizing the project documents resulting from all of the project's documentation efforts. The office engineer will also be responsible for updating the construction documents as necessary, and communicating changes to staff and stakeholders.

3.2.1.4 Inspector

"Inspectors also document the work, keeping such records as are necessary to record manpower, equipment, and materials utilized, to establish contractor production rates and measure and verify quantities for acceptance and for payment" (AKDOT, 2012).

Inspectors produce daily documentation that will often include critical source documents necessary for verifying project progress and providing the basis for contract payment. The accuracy of inspector documentation is critical to quality outcomes.

3.2.1.5 Materials Technicians

Material used to construct roadways and airports is typically excavated in the vicinity of the construction site and the material has to be tested extensively to ensure that it meets construction specifications. Both quality and quantity are documented in detail in order to determine project

progress and payment to the construction contractor. Project progress is a function of material quantities that are placed and the materials technician is responsible for documenting the quality and, with the help of inspectors, the quantity of material placed.

3.2.2 Documenting CA

There are many reasons for the importance of CA documentation throughout the construction project. Here are a few:

- Protecting the owner in the event of a dispute with the contractor
- Protecting the engineer and owner in cases of liability related to design and workmanship
- Verification of quality
- Ensuring progress payments to contractors and vendors
- Demonstrating adherence to applicable safety and environmental regulations
- Communicating requirements as a project is elaborated
- Production of as-built documents – the corrected construction drawings showing what has actually been built; incorporating changes and necessary field modifications – for use in future maintenance, planning and design

Just as the phases of a project can overlap as they transition, so too can construction documentation efforts.

It is critical that CA documentation be organized and data gathered during construction can be captured in structured formats to deliver added value to enterprise asset management, maintenance and operations, and future planning and design. The CA data that is documented can also be used directly to measure CA performance.

This project looks at particular aspect of construction administration documentation that relate to CA reporting quality, project communications and project closeout. \

The following documentation efforts are identified in our survey and used to support recommendations pertaining to quality:

- Pay estimates
- Source documents
- Materials testing reports
- Submittal tracking/Material certification lists (MCL)

The following documentation efforts are identified in our survey and used to support recommendations pertaining to project communication:

- Change orders/Interim work authorization (IWA)
- Meeting documents
- Digital photo logs
- Schedules
- Inspection reports
- Storm water pollution prevention (SWPPP) related reports/logs
- Daily Reports

The following documentation efforts are identified in our survey and used to support recommendations pertaining to project closing:

- Personnel records
- Disadvantaged business enterprise
- Personnel records
- Permits and permit maintenance

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- Personnel records
- Permits and permit maintenance

(DBE) requirements/DBE tracking
- Labor compliance

- Labor compliance

4 RESEARCH METHOD AND APPROACH

This project began to produce a procedures manual for documenting CA; however, a literature review uncovered existing AKDOT manuals addressing documentation processes for CA. Therefore the project was re-scoped to deliver recommendations for updating the AKDOT *Construction Project Documentation* procedures manual published by Central Region AKDOT.

In addition to the literature review a qualitative research method has been developed to determine recommendations for improving the documentation manual. The research plan included interviews with CA professionals and a survey of CA professionals.

A literature review of AKDOT manuals, standards, and policy documents – along with information from interviews with construction administration professionals – informed the survey questions. The survey questions were designed to determine what tools AKDOT CA staff are using and what CA documentation challenges they face.

Based on literature review and interviews with subject matter experts, a list of twenty tools and technologies used to document construction administration was developed for use in the project survey. Respondents were asked how frequently each of the twenty tools was used in documenting CA.

A list of nineteen specific CA documentation tasks was presented in the survey. Respondents were asked to rate each of them from 1 to 9 based on the level of effort required for each type of task and the impact that they thought each type of task has on the project closing. Respondents were also asked whether or not each type of task would be shown on the construction schedule. These questions were intended to identify where CA staff focuses their efforts, what tasks are considered more critical than others, and what tools they utilize.

The rating of 1 to 9 was used as a weighting factor for responses and the arithmetic mean of the weighted ratings for each type of task was calculated and used to rank the responses. Each type of task was ranked by level of effort and perceived impact. Each type of task was also ranked by likelihood (yes or no) that it would be included on the construction schedule (see appendix C for data analysis).

Applying Pareto analysis to each set of rankings (level of effort, impact on project at closing, and likelihood that task would be on the construction schedule), the top 20% and bottom 20% of tasks were tabulated for consideration in making qualitative recommendations.

The project survey was executed according to the research methods planning and sought to identify techniques currently being used, the level of effort perceived for documenting particular types of construction administration, the perceived impact that documentation has on project closeout activities, and questions to validate that appropriate respondents were surveyed.

Analysis of the survey data follows, and the raw survey data collected in October 2014 can be found in Appendix C.

4.1.1 Interviews

Formal interviews were conducted with AKDOT quality assurance department and with construction managers and construction administrators working as consultants to AKDOT. Questions for the interviews and can be found in Appendix D. The interviewees were also encouraged to provide their insights and opinions regarding the three objectives of the research. Formal telephone interviews were conducted with two senior AKDOT construction professionals who provide quality assessment of construction administration as part of the project closeout activities.

4.1.2 Survey Plan

Questions were developed to identify the respondents as construction professionals and determine experience levels of respondents, whether they have received training, what roles they have had in CA, what tools they use most frequently, what documentation processes are most challenging, and what documentations is most valuable or useful.

A variety of documentation tools and technologies are presented based on what has been identified in the literature review and interviews.

Analysis of the survey outcomes were used to identify recommendations for the AKDOT *Construction Documentation Manual*.

4.1.3 Survey Execution

The survey consisted of eleven multipart questions. The goal of the survey was to obtain feedback regarding current CA documentation practices. Questions were also provided to qualify the respondents as appropriate sample subjects and determine their perception of current CA documentation practices. The survey results and analysis is in Appendix C.

The survey, constructed and hosted online using the web-based survey tool SurveyMonkey®, was emailed to 285 construction professionals at AKDOT and their consultants. Timing of the survey in October was during a slow season for construction professionals.

Email testing of the survey was conducted over two days using several different email domains, including the state AKDOT email domain, to test survey delivery methods. It was determined that the AKDOT email server would filter any email arriving form the commercial survey domain "SurveyMonkey.com" as spam, so an alternative method needed to be developed to distribute the survey to the 285-member survey sample.

It was determined that the UAA email domain would not be filtered by the stat's server, so a mail merge application built into Microsoft® Office was used along with the Microsoft® Outlook email client. Population of email addresses and other data fields provided unfiltered delivery of individualized email for each of the 285 survey recipients. The survey was piloted using seven construction professionals, including AKDOT employees, for an additional two days to determine the effectiveness of the survey delivery method.

5 ANALYSIS

Survey demographic data was used to validate that the survey respondents were appropriate to the topic. Survey data pertinent to the tools and technologies used to document CA, and data regarding specific CA documentation tasks, was also collected. Pareto analysis was applied to the survey data to extract those elements of specific concern or impact on recommendations to improve quality, project communications, and project closing.

5.1 VALIDATION

The survey asked the respondent to identify their role and experience in AKDOT construction administration. The data collected may be used for further analysis beyond the scope of this project. Validation is presented in the following sections.

5.1.1 Roles - Figure 1.

Fourteen different CA roles identified in literature review and based on experience in typical construction projects were used to qualify the sample subjects. Survey respondents were asked to select which roles they've performed during their work in CA, and they were provided the opportunity to write in a response.

Respondents identified with 9 of the 14 choices provided, and 34% of respondents provided write-in responses which were equated with an initial role and 10% of respondents provided "Technician" as a write-in option[2].

Seventy-five percent of responses were among the roles of Inspector, Project Engineer, Office Engineer, or Project Manager/Group Chief. Figure 1 shows the distribution of responses and illustrates that the survey targeted an appropriate sample.

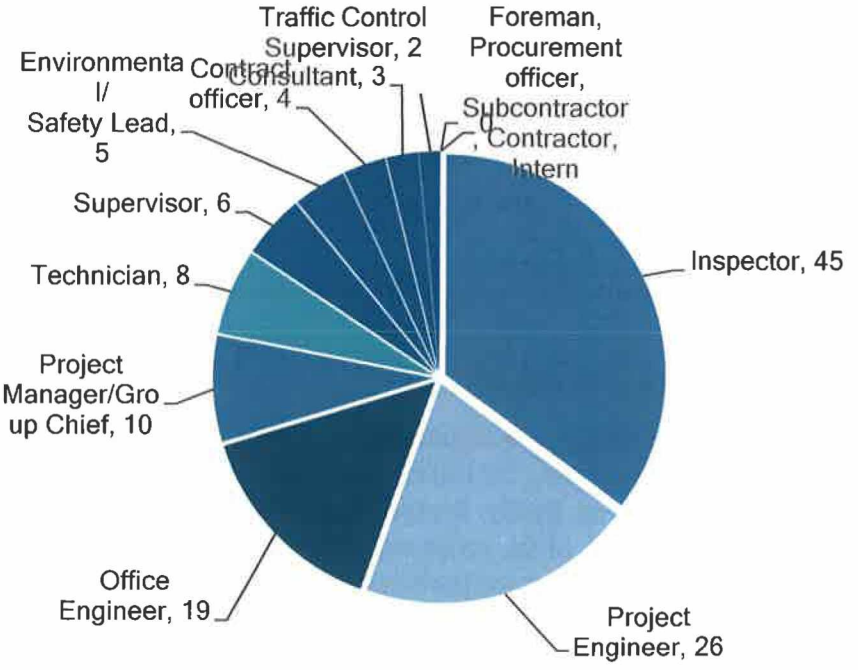

Figure 1. Construction administration roles and numbers of responses.

[2] The role of "Technician" has been added to the list of roles. "Technician" refers to a soils testing technician and is a significant role associated with documenting the quality and quantity of construction material used on AKDOT projects.

5.1.2 Experience – Figure 2.

Nearly 40% responded that they've worked more than 20 construction projects or construction seasons with AKDOT, and nearly half of the respondents have worked more than 15 construction seasons or on more than 15 construction projects as illustrated in Figure 2.

Sixty-two percent of survey respondents included comments regarding their level of experience. Common among the comments were academic degrees, on-the-job training, and a variety of different training associated with transportation construction.

A notable feature of this data is that nearly half of the respondents have worked more than 15 construction seasons or construction projects with AKDOT, and nearly 40% report more than 20. This large segment should be considered senior-level professionals providing experienced responses to the survey.

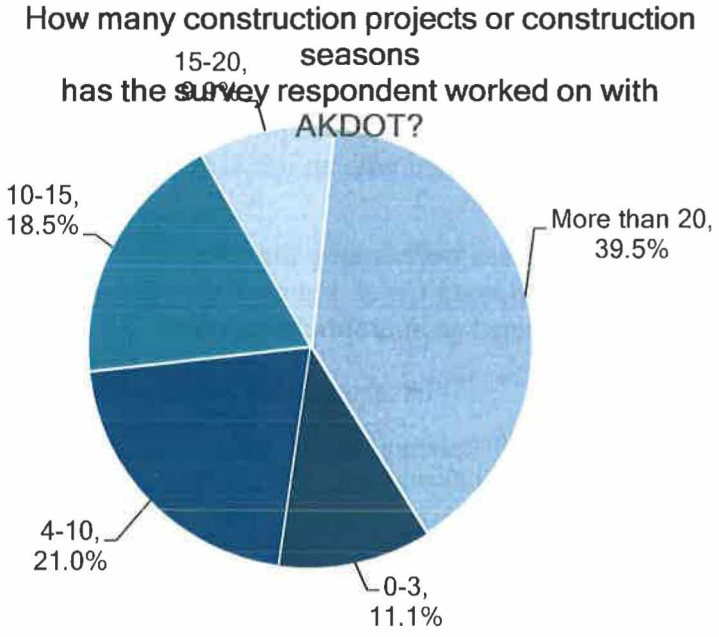

Figure 2. Experience level of construction professionals surveyed.

5.2 PARETO ANALYSIS – "80-20 RULE"

The Pareto Principle[3] is used here as a qualitative approach to analyzing the survey data in order to parse the most significant outcomes for informing recommendations. This approach was applied to quality control problems by Dr. Joseph Juran to propose that 80% of the value lost to poor quality could be seen in 20% of the problems with quality. This approach has been applied to a wide variety of situations as a tool for problem analysis and the Pareto Chart is used as a visual method for identifying the most significant elements in an analysis (Summers, 2005).

The application of Pareto analysis here intends to focus on the 20% most significant outcomes as the source for potentially 80% of possible improvement based on the survey data set. An

[3] The Italian economist, Vilfredo Pareto, found that 80% of the wealth of Italy was owned by 20% of the population and his graphical representation of this data has become known as the "80-20 rule". This principle has been widely applied as a qualitative analysis tool.

approximate 20% of high and low ranking elements, and host frequent and infrequent application of tools is being considered in developing recommendations based on this qualitative analysis.

6 RESULTS

6.1 INTERVIEW RESULTS

Primary outcomes from interviews are listed below. Some recommendations are presented as a direct response to these outcomes, other times these outcomes are used to support recommendations stemming from the survey outcomes.

- Updates to Central Region documentation manual are usually issued in conjunction with training sessions for Central Region office engineers and project engineers.
- Materials technicians may not be fully aware of the importance of their work and the high cost of collecting and testing soil samples; "*When technicians are presented with the actual costs of having to rework samples, which can be thousands of dollars per sample, they tend to become more conscientious and improve performance, reducing costly mistakes.*"
- The best practices of CA staff, and especially the inspectors, will deliver a fully detailed narrative of the project's progress. More information is better than less, and QA staff often feels they would like more information to "see" the project. Lots of pictures can be helpful.
- *"Project managers who are not in the field on a day to day basis need better information about what is going on, particularly in remote sites."*
- *"CA staff working on projects need well-defined protocols for documenting construction administration."*
- *"Some of the construction documentation effort is left undone in the field with the intention that there will be time to complete this during the winter season"*
- *"Construction workers cannot be expected to learn GIS"*

6.2 SURVEY RESULTS

The following three sections present the survey data used for developing recommendations. The survey asked respondents about the tools and techniques being used, the relative level of perceived effort and impact of certain CA documentation tasks, and the reference materials used to assist CA professionals in documenting projects.

6.2.1 Documentation Tools and Techniques

Respondents were asked to report their frequency of use for each in a given list of tools and technologies used for documenting CA as discussed in the AKDOT literature and in interviews.

Figure 3 presents a graphical representation of the data. This is then broken down to individual histograms that illustrate what tools and technologies are used more frequently than others.

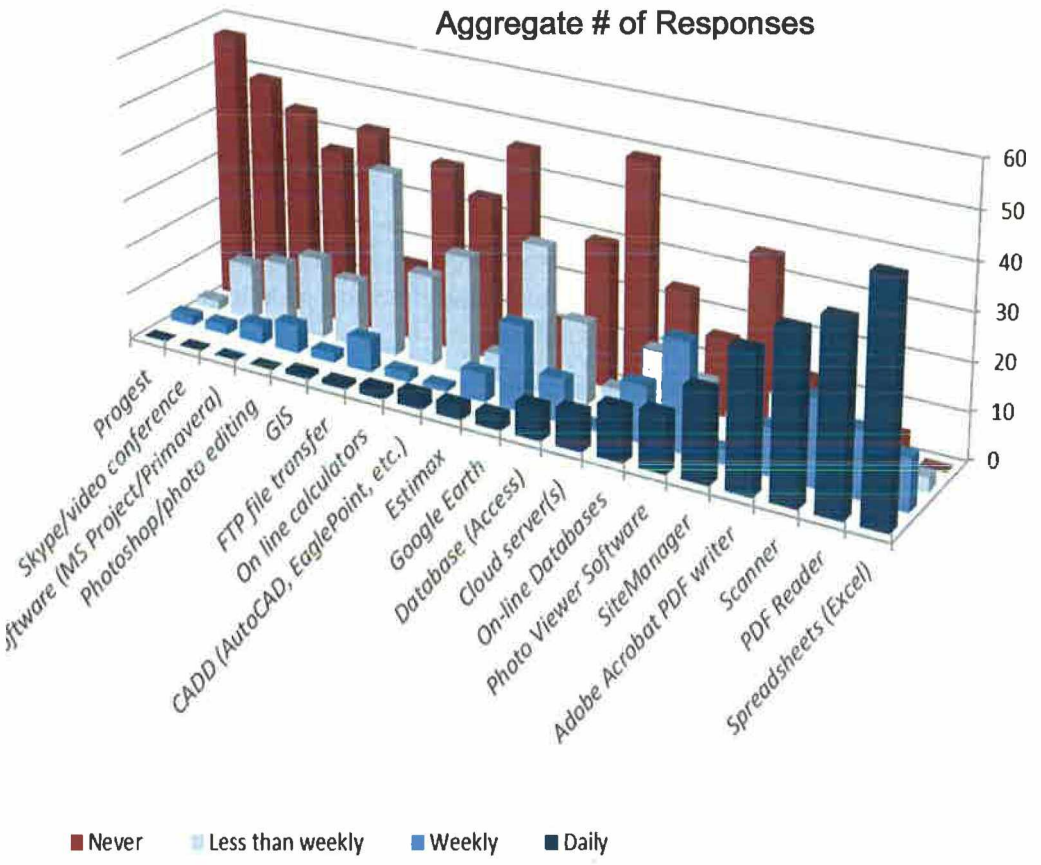

Figure 3 – Respondents selected frequency of use for twenty proposed tools and technologies used to produce CA data and documents.

Figure 4 and Figure 5 show the number of survey responses indicating the most used tools on a daily and weekly basis, respectively. The top 20% is highlighted in both cases and is used to make recommendations

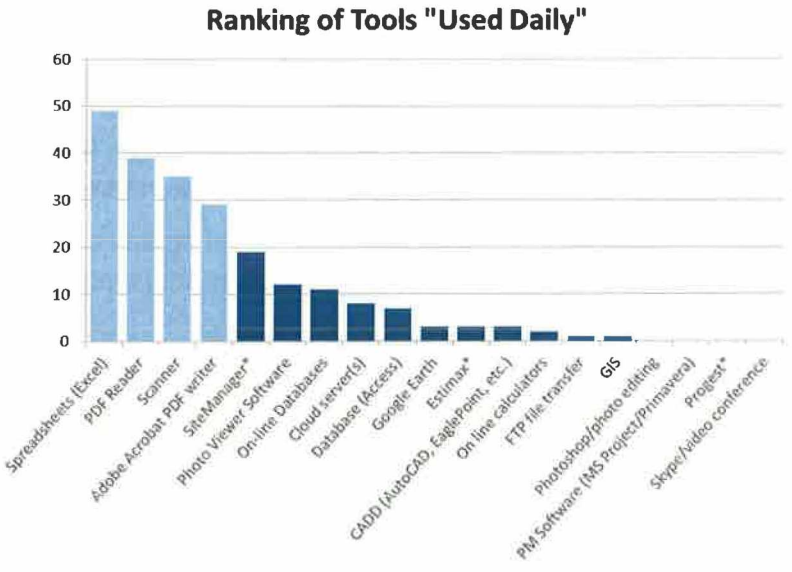

Figure 4 - Tools identified as used daily.

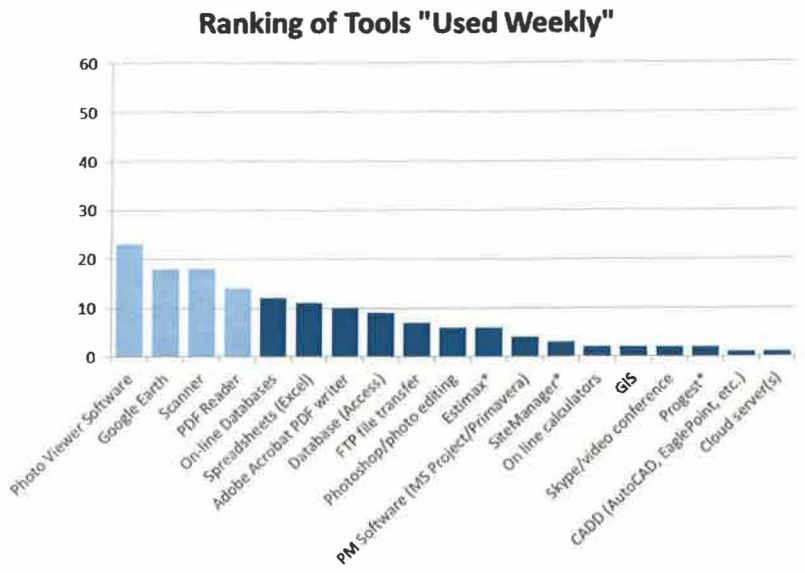

Figure 5 - Tools identified as being used weekly.

Figure 6 shows the response given when asked which tools are never used. The approximate 20% of highest responses are considered when making recommendation. The items "Progest" and "Estimax" refer to proprietary software tools that are used regionally or are being discontinued. These are being removed from the selection for consideration in order to identify those items more relevant to developing recommendations.

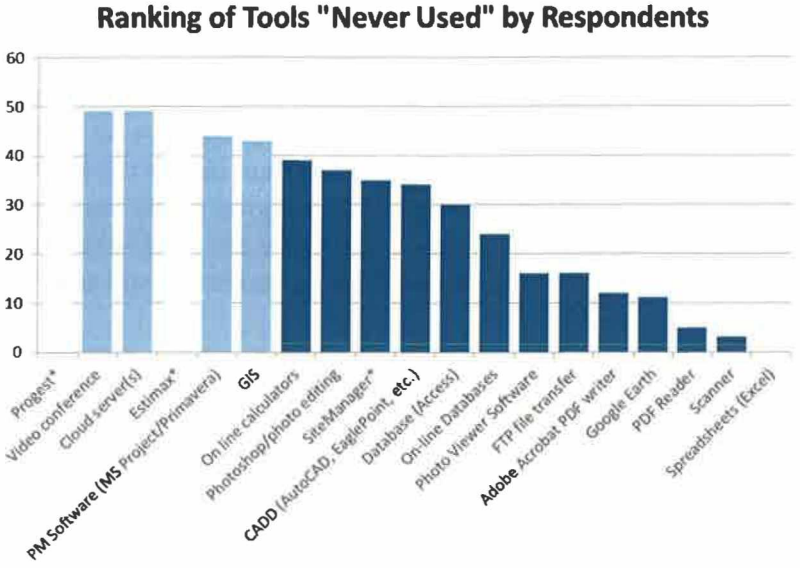

Figure 6 - Tools identified as never being used by the respondent.

Further discussion regarding the highlighted items in the figures above will be found in the recommendations section.

6.2.2 Documentation Tasks

Approximately 20 different tasks common to AKDOT construction were included in the survey to determine the CA professionals' perception each has on a project. Each of the respondents were asked to rate their perceived relative level of effort required for documentation efforts. The respondents were asked to rate their perceived level of impact that documentation task has on a

project at closeout, and the respondents were asked to rate their level of expectation that each of the given tasks would be shown on a construction schedule.

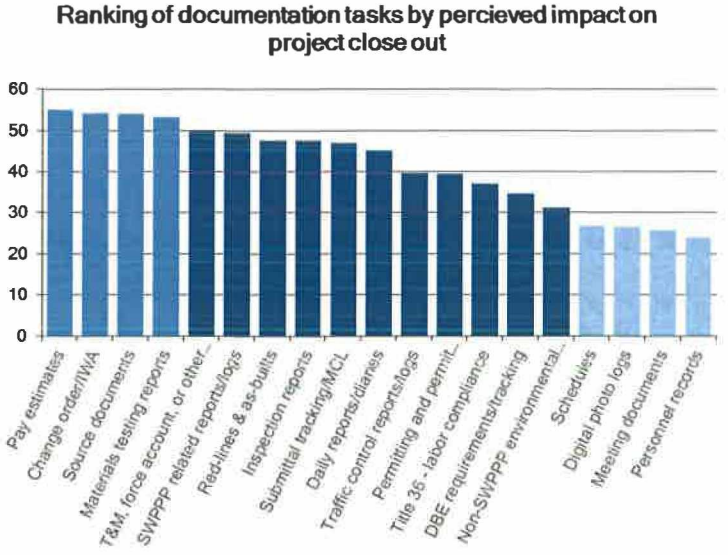

Figure 7 Survey responses ranked for Pareto analysis.

The outcomes were ranked using weighted averages based on the rating provided by the respondents. These outcomes were put into a histogram as shown in Figure 7 and, applying a Pareto analysis, the top 20% of each of the ranked survey outcomes and the bottom 20% of the outcomes were tabulated in Tables 1 thru 3.

Each entry in Tables 1 thru 3 is associated with one of three of the topics where recommendations were developed: closeout efforts (closeout), quality assurance (quality), or communications (communication). This alignment is somewhat subjective as some types of documentation serve multiple purposes and may impact more than one of the three categories being considered for targeting improvements. For example, a digital photo log is a great communications tools illustrating the work and progress of the work to off-site project managers, and photographs may also serve as source documentation that verifies scope and quality.

Table 1 Relative levels of perceived effort required for different documentation tasks based on survey outcomes.

Most effort required	(document type)	Least effort required	(document type)
1. Materials testing reports	(quality)	1. DBE requirements/DBE tracking	(closing)
2. Inspection reports	(communication)	2. Labor Compliance	(closing)
3. SWPPP related reports/logs	(communication)	3. Personnel records	(closing)
4. Producing source documents	(quality)	4. Permits and permit maintenance	(closing)

Table 2 Relative levels of perceived impact of different documentation tasks on project closing based on survey outcomes.

Most impact at project closing	(document type)	Least impact at project closing	(document type)
1. Pay estimates	(quality)	1. Personnel records	(closing)
2. Change orders/IWA	(communication)	2. Meeting documents	(communication)
3. Source documents	(quality)	3. Digital photo logs	(communication)
4. Materials testing reports	(quality)	4. Schedules	(communication)

Table 3 Relative levels of expectation that the particular documentation requirement will be shown on the construction schedule based on survey outcomes.

Most likely to be on the CA schedule	(document type)	Least expected to be on the CA schedule	(document type)
1. Digital Photo logs	(communication)	1. Permits and permit maintenance	(closing)
2. Source Documents	(quality)	2. Daily Reports	(communication)
3. Labor Compliance	(closing)	3. SWPPP related reports/logs	(communication)
4. Submittal tracking/MCL	(quality)	4. Materials testing reports	(quality)

6.2.3 Reference materials

The survey asked CA professionals to select from twelve suggested sources of reference material they would use to determine the procedure or protocol for documentation tasks. Reponses were ranked based on the number of times each type of reference material was selected. The top scoring reference materials have been selected, as with the previous survey outcomes, to inform the recommendations being developed.

The materials identified are:

- Project specifications (this includes standard and project-specific specifications)
- Alaska Construction Manual, 2012

- Advice from another CA professional via email

Respondents were also asked to rate eight different techniques for illustrating how to facilitate specific documentation processes. The two most selected options identified are:

- Standardized forms and templates
- Written detailed instructions

Outcomes from the survey questions are considered in the development of recommendations that are described in the next section.

7 CONCLUSIONS AND RECOMMENDATIONS

This research has developed specific recommendations appropriate for the AKDOT Construction Documentation Manual. Recommendations are based on a review of literature, along with a survey and interview of construction administration (CA) professionals. The recommendations are intended to improve documentation quality, improve documentation processes for better project communications during construction, and reduce the time and effort currently required for project closeout.

These recommendations are developed from a qualitative analysis of the research. The specific application of these recommendations to the topics of quality, communications, and closeout are somewhat subjective and there is overlap among them.

These recommendations may be issued directly to the AKDOT, and a memorandum presenting the recommendations is in Appendix B.

7.1 RECOMMENDATION TO IMPROVE QUALITY

Stakeholders have asked for improved quality as defined by better outcomes from quality assurance (QA) reviews done by AKDOT. These reviews look for completeness and accuracy of documentation. The reviews are usually focused on quality control documentation related to materials testing and certifications. QA reviews also look for source documents that verify payments according to contract agreements, and a documented audit trail for contract pay items.

Analysis of the survey data presented in tables 1, 2 and 3 suggests that efforts associated with documentation quality are perceived by CA staff as having relatively more impact on the project and are given more effort relative to other documentation activities. This is a positive finding and some recommendations can still be provided based on interviews done as part of this research.

7.1.1 Materials Testing and reporting

Documenting material testing is a critical function associated with CA quality. In an interview with AKDOT quality assurance staff it was noted that technicians who receive specific information about the high cost and value of their work become more effective and efficient. The AKDOT Construction Documentation Manual and associated training should be regularly updated to present the costs associated with materials sampling and testing. Specific examples of the cost of re-work should be presented along with emphasis of the responsibility and opportunity that materials technicians and the CA staff have to avoid significant cost impacts associated with inaccurate or missed testing procedures. It is expected that this effort will improve the quality of materials testing and documentation.

7.1.2 Geographic Information Systems (GIS)

The survey data indicates that Google Earth is used regularly by AKDOT CA professionals. This tool should be encouraged as an introduction to geographic information systems (GIS) application. While current QA assessment may not consider GIS-based documentation, it is a data management process that brings value to CA efforts. The Moving Ahead for Progress in the

21st Century act (MAP-21) to authorize funds for federal funded highways, for example, encouraged new technologies in surface transportation construction. GIS-based highway projects were funded much more easily by the federal government than non-mapped projects. This trend is expected to continue. (Yoder 2012). GIS application in CA is also a recommendation of the *AKDOT Transportation Asset Management Assessment* provided by the Federal Highway Administration (FHWA 2010).

Construction consultants have expressed in interviews the observation that "construction workers cannot be expected to learn GIS"; however, most CA documentation has location-based significance and the value of moving toward mapped data is significant. Google Earth is a familiar application that provides geo-referenced data in an easy to use graphic interface. Licensing for professional versions of this application should be considered for projects, and exploration of the various uses of the application is encouraged.

While survey data indicates that Google Earth is used regularly by AKDOT CA professionals, the survey also shows GIS frequently selected as a technology that is never used on projects. This may be an indication that fundamental understanding of GIS requires clarification. Discussion of GIS potential and examples of the use of mapping applications such as Google Earth should be added to the Construction Project Manual.

7.2 RECOMMENDATION TO IMPROVE COMMUNICATIONS

Stakeholders at the onset of this project asked for this research to identify procedures that will improve communication of project activities to the project manager and contract managers during construction. This research suggests that electronic copies of documents are being produced on a daily basis during construction, and even the most remote construction projects today specify that CA offices have internet connectivity as a contractor requirement. Modern computer systems are also a required feature in CA offices.

7.2.1 Portable Document Format (PDF) Files

Survey outcomes show that Portable Document Format (PDF) tools are used daily by many of the CA survey respondents. PDF is a standard on the Internet and is used to distribute electronic documents over networks, via email and on digital media such as compact disc and flash drives. "PDF is also the basis for new processes; its support for accessible electronic forms, digital signatures, password security and electronic mark-ups make PDF the ideal format for converting yesterday's paper-based business processes to interactive digital processes."(Adobe®, 2004). The Construction Documentation Manual and associated training should demonstrate specifically how to use PDF technology and electronic filing. The Construction Project Documentation manual describes a records management structure for filing documents and should encourage that the same structure also be used to manage digital PDF files that are generated. An electronic records structure could mirror the construction office hard copy files. Electronic PDF files could be easily shared with headquarters and project managers via the internet using cloud storage or VPN services.

PDF technology is non-proprietary and therefore accessible to all computer systems so that any programs can produce a PDF document as easily (easier, in fact) as printing to paper and PDF files can be saved directly to the project electronic filing system. Documents that require hard copy generation for signatures, sketches, field notes, distributed forms and checklists etc. should be electronically scanned to create PDF files that capture all of the information on paper copies. The survey data suggests that scanning is a technology already familiar to CA professionals and the Construction Project Documentation manual should describe the process and encourage PDF generation of all available documents.

7.2.2 Meeting Documents, Digital Photo Logs, Schedules

Meeting documentation, schedules, and digital photo logs were selected by survey respondents as among those documentation efforts perceived to have the least impact on project closeout efforts (Table 2). However, each of these communication-related documentation efforts is specified in contract documents as a requirement, and therefore should be considered necessary throughout the construction effort. The project office engineer, though not always the producer of each instance of these CA elements, is particularly responsible for their generation and dissemination. The Construction Project Documentation manual should discuss the various sources of these documents and assign clear responsibility for these documents to the office engineer.

These documents are especially valuable in communicating the project progress to the project manager. As was discussed in interview with AKDOT quality assurance staff, photos are invaluable in "painting a picture" of the construction efforts. The process for generating, managing and communicating digital photo logs should be well defined in the documentation manual.

Meeting documents, digital photo logs, and schedules should be given more attention in the AKDOT *Construction Documentation Manual* and accompanying training. The survey outcome indicates that these communication-related documentation activities are perceived by CA staff as having less impact on project closing (see table 2). However, the project manager will be aware of the importance of these documentation efforts as a source of information needed during construction.

7.3 RECOMMENDATION TO IMPROVE CLOSEOUT

The un-written yet familiar understanding captured in a research interview statement that, "some of the construction documentation effort is left undone in the field with the intention that there will be time to complete this during the winter season", is reflected in the survey outcome. When asked to rate the relative level of effort of documentation tasks it was those tasks associated with project closing that were identified as being given the least effort.

7.3.1 Post-season Documentation

The expectation that some administrative work can be done post-season may not be unreasonable, but it should be understood that project resources (staff) are often adjusted as a project transitions from the execution phase to the closing phase. This can result in a lack of CA staff familiarity with the status of documentation for a project, and unintended delays in project closeout as new staff research documentation requirements such as product certifications and personnel actions. Delaying documentation requirements could also result in needed work being overlooked as time passes and attention is shifted.

To help avoid CA documentation efforts being overlooked, miss-placed or left undone the *Construction Project Documentation* manual should define specifically what CA documentation can be postponed (if any) until the "off season", and require that CA staff create descriptive placeholders for such documents and a schedule for their completion that includes references as needed.

7.4 ADDITIONAL RECOMMENDATIONS

The literature review of reference material on line and in the CA consultant library provided a confusing array of construction related documents, and the authorship and authority of these reference documents was sometimes unclear. This project was initiated with the sponsorship of an Anchorage based consulting firm and the research was done primarily in Anchorage; therefore the AKDOT Central Region became a primary resource. The recommendations herein

are made with respect to the *Construction Project Documentation* manual published periodically by Central Region and provided as the *Office Engineer Update* for training by the AKDOT Central Region Quality Assurance Group.

7.4.1 Consolidation and Cross References

The AKDOT Statewide Design and Engineering website provides a well-organized resource of manuals; consideration should be given to consolidating the online location of region-specific manuals on the statewide site.

Survey outcomes regarding reference materials (section 6.2.3) suggest that the Alaska Construction Manual, 2012, may be the most referenced manual for AKDOT construction. This is a comprehensive manual and, while no conflicts between this manual and the *Construction Project Documentation* manual have been presented, cross references should be cited in each manual.

7.4.2 Specifications

CA professionals most frequently refer first to construction specification documents to determine the documentation requirements and procedures. These documents should reinforce requirements for specific documentation related to CA. Standard specifications should then be referenced in the *Construction Project Documentation* manual. For example, in the case of contractor's schedule, the specification will require updated schedules and work plans from the contractor and the specification could be expanded to include the ultimate disposition of such documents with the AKDOT project manager routed through the office engineer. The specifications should be used to codify documentation protocols to a greater extent than is now the case.

7.4.3 New Workforce Development

Construction Project Documentation manual should take into consideration the changes in technologies familiar to new entrants to the workforce. A younger workforce will have a different skill set when it comes to applying digital tools to documentation than the senior workers. There is an opportunity for shared learning on the job that may not fit into the hierarchical leadership structures typically found in AKDOT construction on the job training.

8 RECOMMENDATIONS FOR FURTHER RESEARCH

This project produced data that could be used in future research.

8.1 ADDITIONAL DATA ANALYSIS

A large of amount of survey data has been collected in this research. The survey consists of eleven questions, most of which are multi-part questions. The goal of the survey has been to obtain feedback regarding current CA documentation practices, and this study provided a qualitative analysis of the data to present recommendation for updating an AKDOT training document. The survey data should be considered for additional analysis based on refinement of the sample responses with respect to specific roles within the CA staff and/or their level of experience. A qualitative analysis of this data would likely produce insights for additional recommendations regarding AKDOT CA practices not limited to documentation.

8.2 WORKFORCE DEVELOPMENT

There may be opportunities to use this data set in human resources research. The survey data suggests that a large portion of the workforce is senior level. The data collected in this project may be useful in research related to workforce demographics and workforce development. Closer analysis of the data may indicate how different technologies are used by workers with different levels of experience..

8.3 MANAGING PHOTOGRAPHS

The survey data indicates frequent use of tools related to viewing photographs. The research interviews included comments from project managers who feel that photographs are invaluable for communicating construction progress and quality. Research to determine specific ways in which digital photographs are collected, stored, shared, archived, etc. is recommended. Because there are many different formats for handling digital photographs, and because of the large number of photographs that can be generated, it would be useful to develop procedures and protocols specific to managing photographs. Currently the language in the Alaska Construction Manual refers primarily to still photographs in paper formats and bound books.

8.4 STRUCTURED DATA

The survey data for this project shows that spreadsheets are among the most frequently used tools in CA documentation. This observation should be further developed in order to find ways to leverage the use of spreadsheets in CA. Spreadsheets are the perfect tool for developing structured data sets that increase the usefulness and value of the data collected.

Data collected in a structured manner can be used with other data systems for aggregation, analysis, integration and communication. Thought should be given to providing formatted spreadsheets for CA staff to input data that documents construction, and can be further used in larger data systems such as GIS, cost and performance databases, etc.

9 APPENDICES

APPENDIX A. SOURCES AND ACKNOWLEDGMENTS

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Thank you to all the construction professionals at the Alaska Department of Transportation & Public Facilities.

APPENDIX B. RECOMMENDATIONS MEMORANDUM

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UNIVERSITY OF ALASKA ANCHORAGE, COLLEGE OF ENGINEERING,
PROJECT MANAGEMENT DEPARTMENT

TO:	ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, QUALITY ASSURANCE
FROM:	RAYMOND O'NEILL, UAA PROJECT MANAGEMENT
SUBJECT:	RECOMMENDATIONS FOR THE *CONSTRUCTION PROJECT DOCUMENTATION* MANUAL
DATE:	MARCH 29, 2015
CC:	CONSTRUCTION ADMINISTRATION CONTRACTORS AND PARTNERS

RESEARCH PROJECT

This report presents outcomes of a project management research to identify recommendations that will:

- Improve the ***quality*** of construction project administration
- Improve project ***communication*** during construction
- Improve the project ***closeout*** process

These recommendations are the result of a University of Alaska Anchorage (UAA) Capstone research project for the Master of Science in Project Management program. The research project was initially sponsored by a multidisciplinary engineering consulting firm providing construction administration services to the State of Alaska Department of Transportation & Public Facilities (AKDOT).

The author and UAA advisory committee wish to express gratitude to the AKDOT construction departments for their participation in the research survey, interviews and literature review that made this report possible and the AKDOT contracting partners who have provided insight through formal and informal interviews to identify objectives for this research project.

This project began when an AKDOT construction management consulting partner requested development of well-defined documentation procedures and protocols that would assist staff in meeting AKDOT quality assurance objectives and improve the firm's business performance.

The original scope of this project was to deliver a manual for documenting construction administration (CA); however, a literature review uncovered a number of existing AKDOT manuals addressing documentation processes. Therefore the project scope was modified to deliver recommendations for future updates to the AKDOT *Construction Project Documentation* manual published periodically by Central Region and provided as the *Office Engineer Update* r training by the AKDOT Central Region Quality Assurance Group.

A survey of AKDOT construction staff and other CA professionals was conducted in October 2014, with responses from approximately 80 participants from over 250 polled. The research also includes formal and informal interviews, and a literature review.

This report provides recommendations resulting from a qualitative analysis of the research data.

RECOMMENDATIONS

TO IMPROVE QUALITY

Stakeholders have asked for improved CA quality as defined by better outcomes from quality assurance (QA) reviews done by AKDOT. These reviews look for completeness and accuracy of documentation, particularly quality control documentation related to materials testing and certifications. QA reviews also look for source documents that verify payments according to contract agreements, and a documented audit trail for contract pay items.

Analysis of the survey data suggests that efforts associated with documentation quality are perceived by CA staff as having relatively more impact on the project and are given more effort relative to other documentation activities. The *Construction Project Documentation* manual and other procedures manual cover the topic of source documents, materials testing records, and other reporting extensively, and recommendations are provided based on interviews.

Materials Testing and reporting

Documenting material testing is a critical CA function associated with CA quality. In an interview with AKDOT quality assurance staff it was noted that technicians who receive specific information about the high cost and value of their work become more effective and efficient. The AKDOT *Construction Project Documentation* manual and associated training are regularly updated and should present the costs associated with materials sampling and testing. Specific examples of the cost of re-work should be presented along with emphasis on the responsibility and opportunity that materials technicians and CA staff have to avoid significant cost impacts associated with inaccurate or missed testing procedures. It is expected that this effort will improve the quality of materials testing and documentation.

Geographic Information Systems (GIS)

The survey data indicates that Google Earth, a geographic information system (GIS), is used regularly by AKDOT CA professionals. This tool should be encouraged as an introduction to other geographic information systems. While current QA assessments do not evaluate GIS-based documentation, it is a data management process that brings value to CA efforts and will become increasingly more important to transportation projects. The Moving Ahead for Progress in the 21st Century act (MAP-21) to authorize funds for federal funded highways, for example, encourages developing technologies in surface transportation construction. GIS-based highway projects were funded much more easily by the federal government than non-mapped projects. This trend is expected to continue. (Yoder 2012). GIS application in CA is also a recommendation of the AKDOT Transportation Asset Management Assessment provided by the Federal Highway Administration (FHWA 2010).

Construction consultants have expressed in interviews the observation that "construction workers cannot be expected to learn GIS"; however, most CA documentation has location-based significance and the value of moving toward mapped data is significant. Google Earth is a familiar application that provides geo-referenced data in an easy to use graphic interface. Licensing for professional versions of this application (or other similar mapping interface applications) should be considered for CA efforts, and exploration of the various uses of such applications should be encouraged.

The survey data indicates that "Google Earth" is used regularly by AKDOT CA professionals, but the tool "GIS" was frequently selected by respondents as a technology that is never used on projects.

This may be an indication that fundamental understanding of what "GIS" is and how it is used requires clarification. Discussion of GIS potential and examples of the use of mapping applications such as Google Earth should be added to the *Construction Project Documentation* manual.

TO IMPROVE COMMUNICATIONS

Stakeholders asked that this research identify procedures that will improve communication of project activities to the project manager and contract managers during construction. This research suggests that electronic copies of documents are being produced on a daily basis during construction, and even the most remote construction projects today specify that CA offices have internet connectivity as a contractor requirement. Computer network systems are also a required feature in CA offices and these tools should be leveraged to improve project communications.

Portable Document Format (PDF) Files

Survey outcomes show that Portable Document Format (PDF) tools are used daily by many of the CA survey respondents. PDF is a standard on the Internet and is used to distribute electronic documents over networks, via email and on digital media such as compact disc and flash drives. "PDF is also the basis for new processes; its support for accessible electronic forms, digital signatures, password security and electronic mark-ups make PDF the ideal format for converting yesterday's paper-based business processes to interactive digital processes."(Adobe®, 2004). The *Construction Project Documentation* manual does not provide instruction about PDF. The manual should demonstrate specifically how to use PDF technology and electronic filing. The *Construction Project Documentation* manual describes a records management structure for filing documents, and it should encourage that the same structure also be used to manage digital PDF files that are generated. An electronic records structure should be described to "mirror" the construction office hard copy files. Electronic PDF files could be easily shared with headquarters and project managers via the internet using cloud storage or VPN services.

PDF technology is non-proprietary and therefore accessible to all computer systems so that any programs can produce a PDF document as easily (easier, in fact) as printing to paper; and PDF files can be saved directly to the project electronic filing system. Documents that require hard copy generation for signatures, sketches, field notes, distributed forms & checklists etc. can also be electronically scanned to create a PDF file that captures all of the information on the paper copy. The survey data suggests that document scanning technology is familiar to CA professionals and the *Construction Project Documentation* manual should describe a process that encourages PDF generation of all available documents so that they are readily accessible via internet and email for stakeholders that cannot be on site at project locations.

Meeting Documents, Digital Photo Logs, and Schedules

Meeting documentation, digital photo logs, and schedules, were selected by survey respondents as among those documentation efforts perceived to have relatively less impact on project closeout than other documentation efforts. However, each of these communication-related documentation efforts is specified in contract documents as a requirement, and therefore should be considered necessary throughout the construction effort. The project office engineer, though not always the producer of each instance of these CA elements, is particularly responsible for their generation and dissemination. The Construction Project Documentation manual should discuss the various sources of these documents and assign clear responsibility for these documents to the office engineer.

These documents are especially valuable in communicating the project progress to the project manager. As was discussed in interview with AKDOT quality assurance staff, photos are invaluable in "painting a picture" of the construction efforts. The process for generating, managing and communicating digital photo logs should be well defined in the documentation manual. Meeting documentation, digital photo logs, and schedules, should be given more attention in the AKDOT *Construction Project Documentation* manual, the Construction Contract Administration Manual for project engineers, and accompanying training for CA staff. Project managers, aware of the importance of these documentation efforts as a source of information during construction, should identify CA staff roles and responsibilities in a communications management plan in order to encourage generation and dissemination of these documents.

TO IMPROVE PROJECT CLOSEOUT

The unwritten yet familiar understanding captured in a research interview statement that, "some of the construction documentation effort is left undone in the field with the intention that there will be time to complete this during the winter season", is reflected in the survey outcome. When asked to rate the relative level of effort of documentation tasks it was those tasks associated with project closing were identified as being given the least effort.

The expectation that some administrative work can be done post-season may not be unreasonable, but it should be understood that project resources (staff) are often adjusted as a project transitions from the execution phase to the closing phase. This can result in a lack of CA staff familiarity with the status of documentation for a project, and in unintended delays in project closeout as new staff research documentation requirements such as product certifications and personnel actions. and overlooking documentation requirements.

To help avoid CA documentation tasks being overlooked, miss-placed or left undone the *Construction Project Documentation* manual should define specifically what CA documentation can be postponed (if any) until the "off season", and require that CA staff create descriptive placeholders for such documents and a schedule for their completion that includes references as needed.

ADDITIONAL RECOMMENDATIONS

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The AKDOT Statewide Design and Engineering website provides a well-organized resource of manuals; and consideration should be given to consolidating the online location of region-specific manuals on the statewide site.

Survey outcomes regarding reference materials suggest that the Alaska Construction Manual, 2012, may be the most referenced manual for AKDOT construction. This is a comprehensive manual and, while no conflicts between this manual and the *Construction Project Documentation* manual were noted, cross referencing was not apparent.

Specifications

CA professionals most frequently refer first to construction specification documents to determine the documentation requirements and procedures. These documents should reinforce requirements for specific documentation related to CA. Standard specifications should then be referenced in the *Construction Project Documentation* manual. For example, in the case of a contractor's schedule, the specification will require updated schedules and work plans from the contractor and the specification could be expanded to include the ultimate disposition of such documents with the AKDOT project manager routed through the office engineer. The specifications should be used to codify documentation protocols.

New Workforce Development

Survey data indicates that nearly half of the respondents have worked more than 15 construction seasons or construction projects with AKDOT, and nearly 40% report more than 20. This large segment should be considered senior level professionals that may be transitioning from the available CA staff workforce. Comparing this to the small segment of the sample that is reported as having less than three construction projects or construction seasons' experience indicates there may be a drain of institutional expertise in the coming years.

Construction Project Documentation manual should take into consideration the changes in technologies familiar to new entrants to the workforce. A younger workforce will have a different skill set when it comes to applying digital tools to documentation than the senior workers. They may be an opportunity for shared learning on the job that may not fit into the hierarchical leadership structures typically found in AKDOT construction on the job training.

In conclusion, there are more details provided in the full project report available through the ESPM Department at the UAA College of Engineering. More detailed analysis of the survey data could provide a basis for additional recommendations. The survey data could be used for further analysis by parsing out data specific to certain CA staff roles, or to experience levels. Review of the survey also indicates how future research could be improved.

Raymond O'Neill, UAA MSPM Student

April 10, 2015

APPENDIX C. SURVEY QUESTIONS AND RESPONSE DATA

APPENDIX C. SURVEY QUESTIONS AND RESPONSE DATA

Raymond

From: Raymond O'Neill <rroneill@alaska.edu>
Sent: Wednesday, October 01, 2014 11:35 PM
To: HomeRaymond@hotmail.com
Subject: UAA Research - Documenting AKDOT Construction Admin.

UAA Engineering, Science & Project Management
University of Alaska Anchorage

Hello Ray,

Excellence in construction requires a dedicated team effort and this research is an opportunity for you to contribute! With your help this research is gathering information about Alaska Dept. of Transportation construction administration and the process of documenting construction efforts.

You've been selected to participate in this survey as a construction professional with first hand AKDOT experience and your input will be analyzed, along with the responses of others, to help illustrate how best we document work in construction. All responses will be kept confidential and only the aggregate data will be studied. All responses will be deleted by the end of the

TAKE THE SURVEY

CLICK HERE

This survey will ask about your role and your best practices when it comes to generating the documents necessary for executing successful construction administration.

current academic semester (Dec 2014).

FEEL FREE TO CONTACT ME if you have any questions or observations, or if you would like to follow up with me regarding the outcomes.

Thank you very much for your participation!

Raymond O'Neill, EIT - UAA Student of Project Management
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RRONeill@Alaska.edu

Here is a link to the survey:

https://www.surveymonkey.com/s/UAA-research_AKDOT-Construction_Admin

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Documenting Construction Administration

Excellence in construction requires a dedicated team effort and this research is your opportunity to contribute!

Thank you for participating in this survey!

What is your expertise...

1. How many construction projects or construction seasons have you worked on with AKDOT?

- ○ 0-3
- ○ 4-10
- ○ 10-15
- ○ 15-20
- ○ More than 20

2. What's your most recent role (or roles) with AKDOT construction project administration teams?

- ☐ Inspector
- ☐ Office Engineer
- ☐ Project Engineer
- ☐ Project Manager/Group Chief
- ☐ Traffic Control Supervisor
- ☐ Consultant
- ☐ Intern
- ☐ Other (please specify)
- ☐ Supervisor
- ☐ Foreman
- ☐ Environmental/Safety Lead
- ☐ Procurement officer
- ☐ Contract officer
- ☐ Contractor
- ☐ Subcontractor

3. Have you attended training designed specifically to teach how to document AKDOT construction administration?

- ○ Yes
- ○ No

4. Please provide other information about your experience, training, education and level of expertise with regard to documenting construction administration.

Next

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What about documentation...

5. Please indicate the relative level of effort required in your position to process or handle the following types of construction documentation activities...

(1 represents the lowest perceived level of effort required or least work, and 9 represents the highest perceived level of effort or most work.)

	1 - Least effort required	2	3	4	5	6	7	8	9 - Highest effort required	N/A
Producing and maintaining Traffic Control Reports/Logs	○	○	○	○	○	○	○	○	○	○
Producing and maintaining Meeting Documents (i.e. agenda, minutes)	○	○	○	○	○	○	○	○	○	○
Producing Source Documents	○	○	○	○	○	○	○	○	○	○
Producing Daily Reports/Diaries	○	○	○	○	○	○	○	○	○	○
Producing and managing Inspection Reports	○	○	○	○	○	○	○	○	○	○
Maintaining Title 36 - Labor Compliance Documents	○	○	○	○	○	○	○	○	○	○
Schedules	○	○	○	○	○	○	○	○	○	○
Producing and maintaining Materials Testing Reports	○	○	○	○	○	○	○	○	○	○
Producing and maintaining Non-SWPPP Environmental Documents	○	○	○	○	○	○	○	○	○	○
Producing and maintaining SWPPP Related Reports/Logs	○	○	○	○	○	○	○	○	○	○
Permitting and Permit Document Maintenance	○	○	○	○	○	○	○	○	○	○
Producing Digital Photo Logs	○	○	○	○	○	○	○	○	○	○

Producing and maintaining Submittal Tracking/MCLs	○	○	○	○	○	○	○	○	○	○
Producing and maintaining Change Orders/IWAs	○	○	○	○	○	○	○	○	○	○
Producing and maintaining Red-lines & As-built Documents	○	○	○	○	○	○	○	○	○	○
Producing Pay Estimates	○	○	○	○	○	○	○	○	○	○
Producing and maintaining Personnel Records (e.g. training records, cert. updates, etc.)	○	○	○	○	○	○	○	○	○	○
Producing and maintaining DBE Requirements/DBE tracking	○	○	○	○	○	○	○	○	○	○
Producing and maintaining T&M, Force Account, or other Procurement Documents	○	○	○	○	○	○	○	○	○	○

Comments:

6. While all construction documentation is critical at project close-out for concurrent review, final payment, QA review, etc., in your experience how would you rate the relative impact of having documentation current and complete for each of the categories listed below?

(1 being least impact and 9 indicating that this documentation is critical to a smooth project close-out or QA assessment.)

	1 - Least critical	2	3	4	5	6	7	8	9 - Most critical
Traffic control reports/logs	○	○	○	○	○	○	○	○	○
Meeting documents (i.e. agenda, minutes)	○	○	○	○	○	○	○	○	○
Source documents	○	○	○	○	○	○	○	○	○
Red-lines & as-builts	○	○	○	○	○	○	○	○	○
Inspection reports	○	○	○	○	○	○	○	○	○
Title 36 - labor compliance	○	○	○	○	○	○	○	○	○
Schedules	○	○	○	○	○	○	○	○	○
Materials testing reports	○	○	○	○	○	○	○	○	○
Non-SWPPP environmental documentation	○	○	○	○	○	○	○	○	○
SWPPP related	○	○	○	○	○	○	○	○	○

reports/logs									
Permitting and permit maintenance	○	○	○	○	○	○	○	○	○
Digital photo logs	○	○	○	○	○	○	○	○	○
Submittal tracking/MCL	○	○	○	○	○	○	○	○	○
Change order/IWA	○	○	○	○	○	○	○	○	○
Daily reports/diaries	○	○	○	○	○	○	○	○	○
Pay estimates	○	○	○	○	○	○	○	○	○
Personnel records (e.g. training records, cert. updates, etc.)	○	○	○	○	○	○	○	○	○
DBE requirements/tracking	○	○	○	○	○	○	○	○	○
T&M, force account, or other procurement tracking	○	○	○	○	○	○	○	○	○

Comments:

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Documenting Construction Administration

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Thank you for participating in this survey!

What tools do you use...?

7. Which of the following electronic/digital tools do you use more or less frequently for generating and/or processing construction administration documents?

	Never	Less than weekly	Weekly	Daily
Scanner	○	○	○	○
Hiperpave	○	○	○	○
Photoshop/photo editing	○	○	○	○
Progest	○	○	○	○
Cloud server(s)	○	○	○	○
Google Earth	○	○	○	○
Skype/video conference	○	○	○	○
Photo Viewer Software	○	○	○	○
FTP file transfer	○	○	○	○
On line calculators	○	○	○	○
Estimax	○	○	○	○
CADD (AutoCAD, EaglePoint, etc.)	○	○	○	○
PDF Reader	○	○	○	○
On-line Databases	○	○	○	○
GIS	○	○	○	○
PM Software (MS Project/Primavera)	○	○	○	○
Spreadsheets (Excel)	○	○	○	○
Adobe Acrobat PDF writer	○	○	○	○
SiteManager	○	○	○	○
Database (Access)	○	○	○	○

Comments:

8. Which of the following document deliverables do you expect to see on your project schedule as a deadline, a due date, a task, or the like?

- ☐ Traffic control reports/logs
- ☐ Source documents
- ☐ Digital photo logs
- ☐ Daily reports/diaries
- ☐ Meeting documents (i.e. agenda, minutes)
- ☐ T&M, force account, or other procurement

- [ ] Schedules
- [ ] Red-lines & as-builts
- [ ] SWPPP related reports/logs
- [ ] Submittal tracking/MCL
- [ ] Permitting and permit maintenance
- [ ] DBE requirements/tracking
- [ ] Change order/IWA
- [ ] tracking
- [ ] Personnel records (e.g. training records, cert. updates, etc.)
- [ ] Title 36 - labor compliance
- [ ] Inspection reports
- [ ] Materials testing reports
- [ ] Pay estimates
- [ ] Non-SWPPP environmental documentation

Comments:

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What are our best reference materials...

9. Which of the following reference materials do you use more frequently than others to determine what construction administration documents are required, who is responsible for them, or where they are routed?

	Never				Occasionally				Routinely, or near daily
Office Engineer's Manual	○	○	○	○	○	○	○	○	○
Department Memos	○	○	○	○	○	○	○	○	○
Alaska Construction Manual (2012)	○	○	○	○	○	○	○	○	○
Department Policy and Procedures documents	○	○	○	○	○	○	○	○	○
Alaska Environmental Procedures Manual (2014)	○	○	○	○	○	○	○	○	○
Region-specific manuals	○	○	○	○	○	○	○	○	○
Chief Engineer's Directives (website)	○	○	○	○	○	○	○	○	○
Email to someone who knows	○	○	○	○	○	○	○	○	○
"Construction Project Documentation" manual	○	○	○	○	○	○	○	○	○
Phone call to someone who knows	○	○	○	○	○	○	○	○	○
A-87 Implementation Manual	○	○	○	○	○	○	○	○	○
Specs (project, specials, standard, etc.)	○	○	○	○	○	○	○	○	○

Others (please specify)

10. What technique you would recommend to illustrate each construction administration process.

For example, if you needed to provide instructions on how to document the disposition of a contractor's submittal, would you choose to create a checklist, a flow chart, or detailed written instructions to illustrate the process?

On the left is a construction administration process that needs to be documented. On the right is a drop down menu of suggested techniques for illustrating how that process is carried out. Choose from the drop down menu a technique you would choose to illustrate the construction administration processes shown on the left.

	Method of instruction/illustration
SWPPP related reports/logs	
Pay estimates	
Non-SWPPP environmental documentation	
Change order/IWA	
Meeting documents (i.e. agenda, minutes)	
Title 36 - labor compliance	
Red-lines & as-builts	
Permitting and permit maintenance	
Personnel records (e.g. training records, cert. updates, etc.)	
Materials testing reports	
Submittal tracking/MCL	
Source documents	
Daily reports/diaries	
Inspection reports	
Digital photo logs	
T&M, force account, or other procurement tracking	
DBE requirements/tracking	
Traffic control reports/logs	
Schedules	

Comments:

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Documenting Construction Administration

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Thank you for participating in this survey!

Final Page of Survey! Thank you for your generous participation!

11. Please feel free to leave any comments regarding the topic of documenting construction administration, or any other observations related to this survey.

All feedback is welcome!

Prev Done

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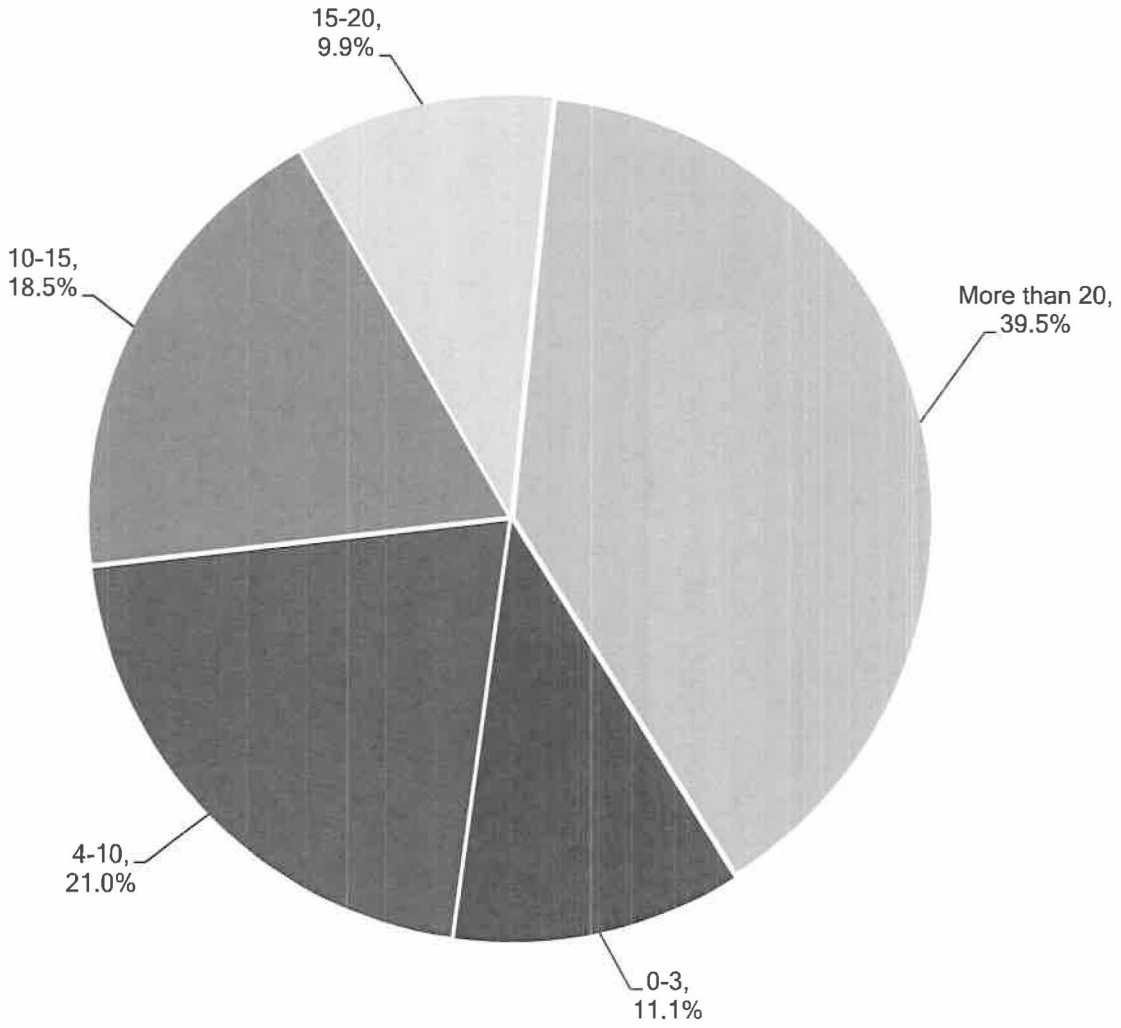
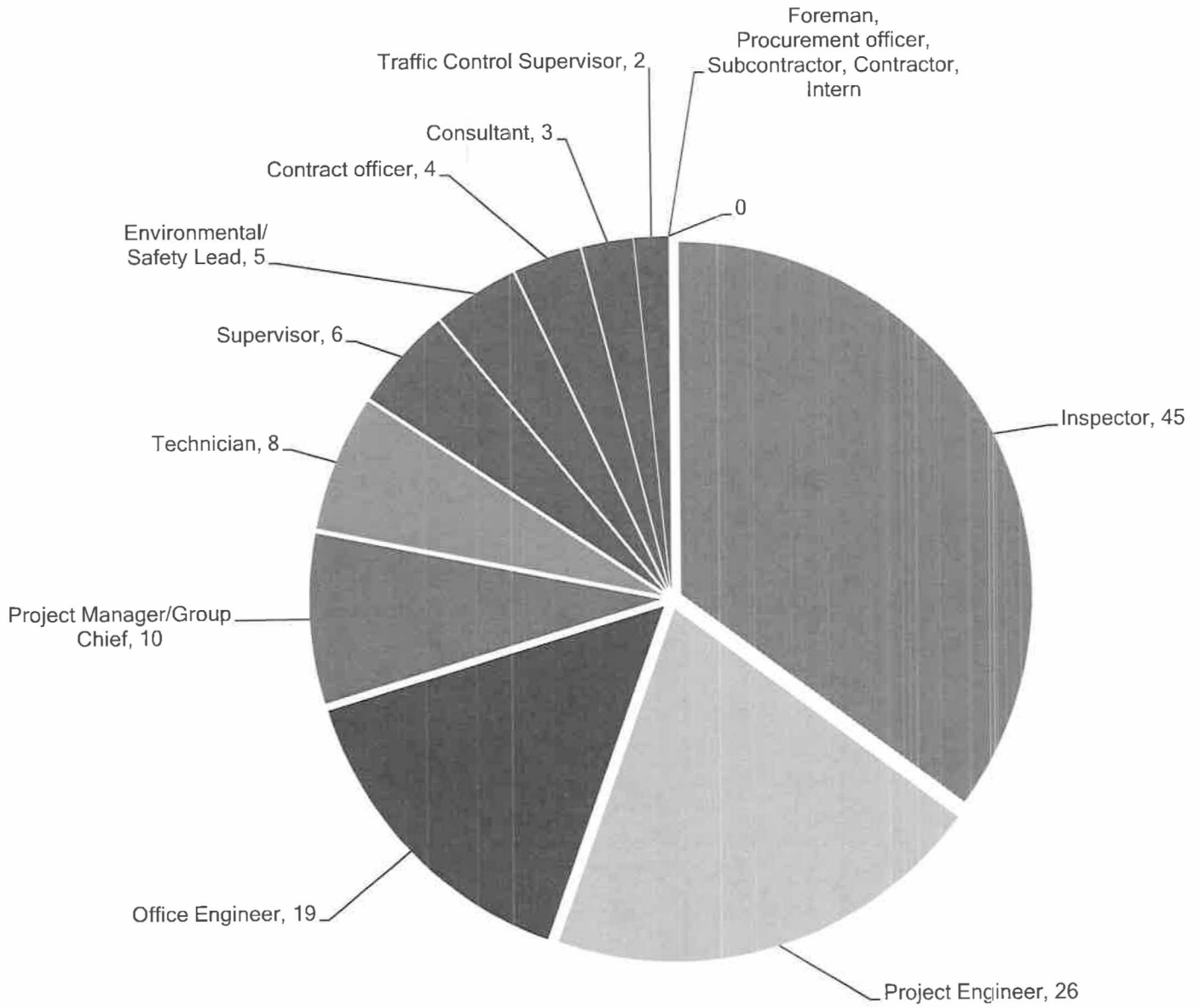
How many construction projects or construction seasons has the survey respondent worked on with AKDOT?



How many construction projects or construction seasons have you worked on with AKDOT?

Answer Options	Response Percent	Response Count
0-3	11.1%	9
4-10	21.0%	17
10-15	18.5%	15
15-20	9.9%	8
More than 20	39.5%	32
	answered question	81
	skipped question	1


Foreman, Procurement officer, Subcontractor, Contractor, Intern
Traffic Control Supervisor, 2
Consultant, 3
Contract officer, 4
0
Environmental/ Safety Lead, 5
Supervisor, 6
Technician, 8
Project Manager/Group Chief, 10
Office Engineer, 19
Inspector, 45
Project Engineer, 26

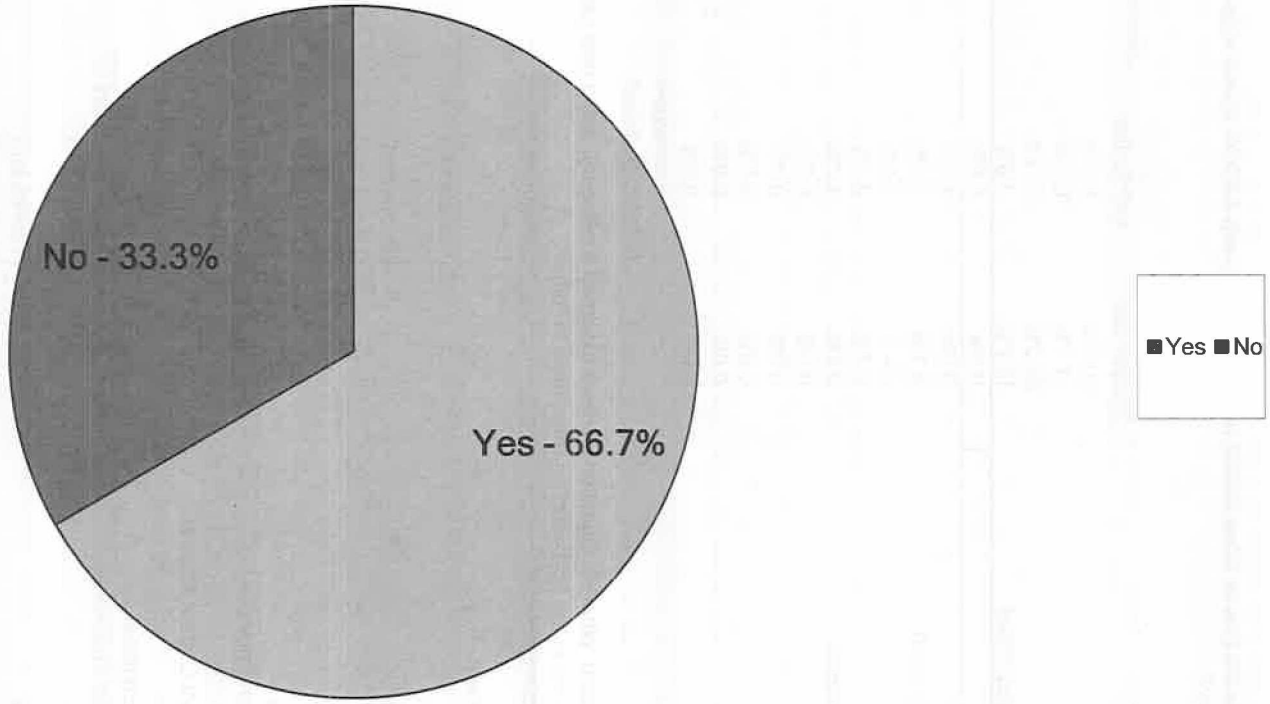
What's your most recent role or roles (select no more than 3) with AKDOT construction project administration teams?

Answer Options	Percent Responded	Response distribution	Response Count	100%
Inspector	50.0%	31.7%	45	17.2
Project Engineer	31.7%	18.3%	26	
Office Engineer	22.0%	13.4%	19	
Project Manager/Group Chief	12.2%	7.0%	10	
Technician	0.0%	5.6%	8	
Supervisor	7.3%	4.2%	6	
Environmental/Safety Lead	6.1%	3.5%	5	
Contract officer	2.4%	2.8%	4	
Consultant	3.7%	2.1%	3	
Traffic Control Supervisor	2.4%	1.4%	2	
Intern	0.0%	0.0%	0	
Foreman	0.0%	0.0%	0	
Procurement officer	0.0%	0.0%	0	
Contractor	0.0%	0.0%	0	
Subcontractor	0.0%	0.0%	0	
		responses	**142**	
		skipped question	**0**	

14 of 28 who responded "other" to Question 2 where assigned a category, and a new category, "Technician" was added to the list based on responses to "other".

Response Other (please specify)	Categories
safety	
Project Review Engineer	
Materials tech	(Technician)
swwwp inspector	(Inspector)
Materials Technician	(Technician)
Materials Testing	(Technician)
concurrent review	
Trainer	
Construction Review	
Regional Construction Engineer	(Contract Officer)
Traffic Control Inspector	(Inspector)
Erosion and Sediment Control Analyst	
Materials Technician	(Technician)
Concurrent Review Engineer	
Regional Construction Engineer	(Contract Officer)
Materials Testing	(Technician)
concurrent review	
Materials Technician	(Technician)
Materials Technician	(Technician)
Quality Assurance Engineer	
Project Engineer Assistant	(Office Engineer)
materials lead	
quality assurance	
Tech	(Technician)
Regional Construction Engineer	
Materials Rover	
SWPPP Inspector	(Inspector)
Quality Assurance Engineer	

Have you attended training designed specifically to teach how to document AKDOT construction administration?



Have you attended training designed specifically to teach how to document AKDOT construction administration?

Answer Options	Response Percent	Response Count	99%
Yes	66.7%	54	
No	33.3%	27	
	answered question	81	
	skipped question	1	

Please provide other information about your experience, training, education and level of expertise with regard to documenting construction administration.

Answer Options	Response Count		
	50		
answered question		50	61%
skipped question		32	

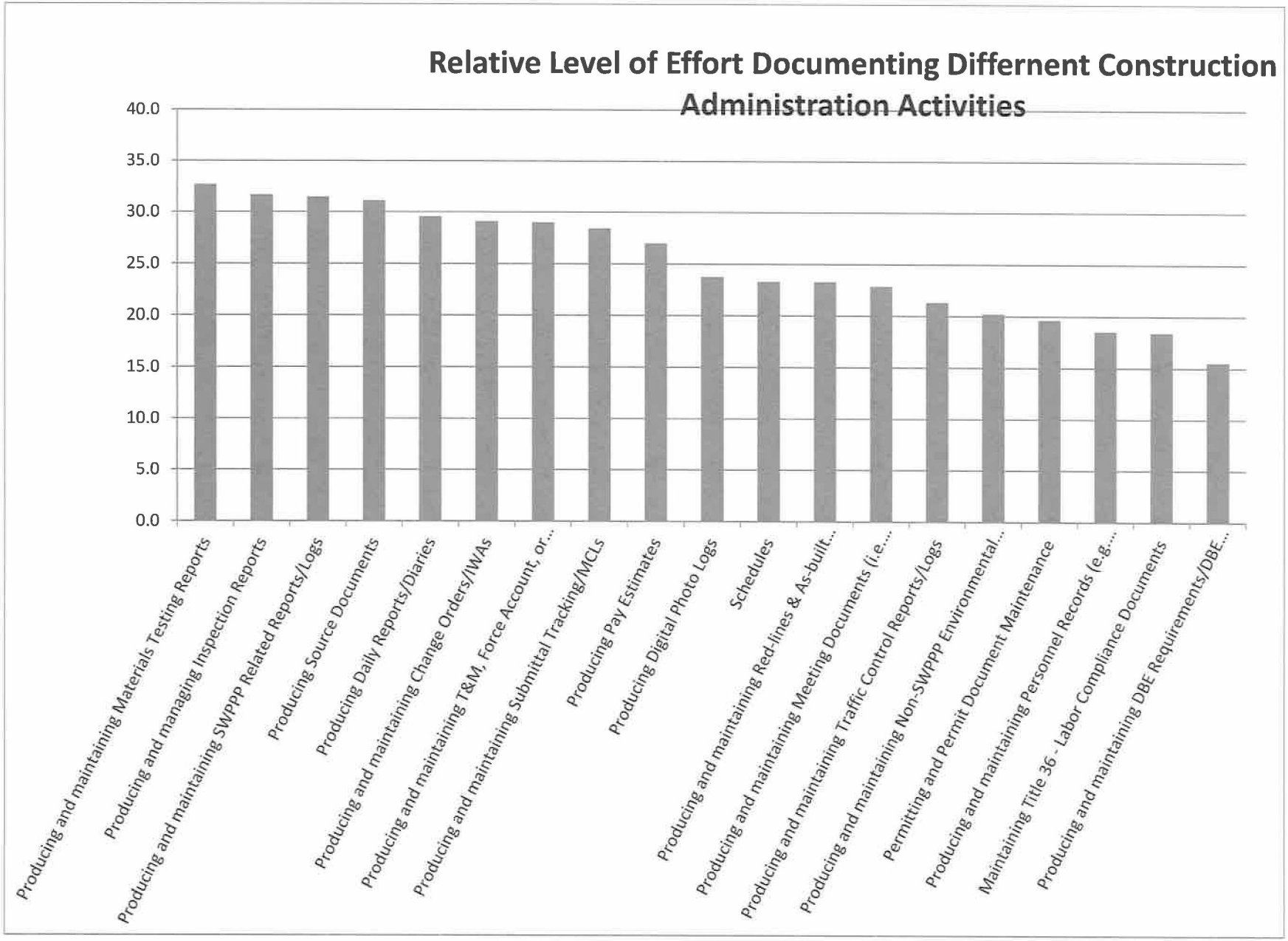
Number	Response Date	Response Text	Categories
1	10/10/14	worked on construction project in material testing and reporting to Office Engineer	
2	10/9/14	I spent 5 years as an Office Engineer. Technical skills can be learned by almost anyone, if you have the right people and process providing training and mentoring. Soft skills: the ability to articulate what is important, why, provide transparency, having a solid level of emotional intelligence, and knowing what values drive conduct and culture in a workplace (etc.) - those are the things that can make a distinction between a successful project, and an exceptional one (or an exceptional workplace). Any technician can learn to fill out a form, or apply specific methods to a situation.	
3	10/7/14	On a side note - this is a completely broad topic here. I'm not sure I can respond in a way that supplies what is needed for your desired outcome or research needs.	
4	10/7/14	Rec'd in house training on construction administration issues.	
5	10/7/14	Professional Engineer, have attended DOT construction administration course several time. Additionally, have attended the Federal Highways admin course. I have been with DOT for about 8 years now and have served as the Concurrent Review Engineer for the last year and a half. I oversee Northern Region's construction projects to provide assurance that the records are in accordance with contract requirements and Department procedures. Prior to this position, I was a design engineer and an EIT (Engineer in Training) and in addition to construction and design. I have worked in the Department's environmental and geotechnical departments. I trained in concurrent review as an EIT and with the former Concurrent Review Engineer for a total of about 5 months before accepting this	
6	10/7/14	position. Most of my training for the duties of this position, like learning to interpret contract language and apply the region's Construction Manual, has been on the job.	
7	10/7/14	On the job experience	
8	10/7/14	As a consultant we routinely keep certifications current. WAQTC, Traffic Control, SWPPP, ect.	
9	10/7/14	I have been in Project Management in the private sector 5 yrs and with the state 25 yrs. My education consists of an engineering Bachelors Degree and many specialized training classes for various aspects of the Civil Engineering. Construction documentation is part of good field inspection.	
10	10/7/14	No training for documenting administration.	
11	10/7/14	My experience with documentation is limited to materials and the materials summary in the specifications.	
12	10/8/14	BSCE, A short, basic training regarding how to document was in the 1980's, which I still have notes from. Lately, the training has focused on learning how to run Site Manager also, an Office Engineer handbook was produced last year. I am with the AKDOT almost 30 years worked on Highway, Airport, and other construction projects.I These project required everyday documentation and testings on asphaltic material, concrete placement, soil treatment and etc. My level of traing mostly coming from the Department of Transportation such as ATTSA, Construction Contracting Warrant, Mine Safety, Radiological Safety, Asphalt Concrete Pavements, Material Control & Acceptance-Quality Management, Soils & Foundations Workshop, Practical Approaches for Effective Erosion and Sediment Control, How to Control Erosion and Establish Vegetation on Steep Slopes, Hazwoper Awareness-Operations Level,Management Training in Consent Building Strategies,Yearly Project Engineer's Meeting, Yearly Spring Training (in house), Yearly Environmental Expo. , etc.]	
13	10/6/14	I obtained a professional engineer's license and CEBS.	
14	10/6/14	Multiple years (7) of technician work/training both on site and in the lab working from a entry level Lab Technition to the Lead Materials Inspector showed the importance of the Documentation. Then with two seasons as an Engineering Assistant I/II working both as the Office Engineer/Assistant Project Engineer and the On site Lead Inspector/Grade boss gave the challenge of managing and coordinating technicians in the field so that proper documentation could be achieved.	
15	10/6/14	Background in Materials	
16	10/6/14	Please define construction admin better.	
17	10/6/14	NHI courses related to contract administration in the field.	
18	10/6/14	My past jobs had a lot of documenting of work performed, plus I've had some good OTJ training when I first started with DOT.	
19	10/6/14	I worked for the AKDOT for 32 years, retiring as the Regional Construction Engineer. I now work for a Consulting Firm.	
20	10/6/14	Master of Arts Degree in Teaching	
21	10/8/14	I don't have any, I've only been here 2 months. My job is mostly to review plans, specifications, and estimates prior to advertising and during advertising to catch any mistakes made in design.	
22	10/8/14	I am a registered professional engineer with 40 years of experience in the design and construction of public funded project for the State of Alaska. Over those years I have attended many seminars, workshops, conferences and lead ship training focused on the delivery and construction oversight and administration of civil/marine projects.	
23	10/8/14	Learning to use Citrix to fill out Daily Work Reports.	
24	10/6/14	Some Contract Law classes. Construction Scheduling Software training.	
25	10/6/14	I have been involved with construction for six years and a storm water specialist for four years. Since working in storm water, our sections, statewide, has put forth a concerted effort to move to digital filing systems. Training is ongoing and I do training as well. I have a BS in Civil Engineering and a PE license.	
26	10/6/14	attended source document/audit classes through Northern Region employees	
27	10/6/14	Over 24 years working on federal and state funded construction projects, starting as a technician and advancing to project engineer, with project amounts varying from two million to thirty-five million. Participated in numerous trainings & certifications, including but not limited to storm water inspection lead training, worksite traffic supervisory training, hazardous materials training, construction claims resolution training, supervisory training, etc.	
28	10/6/14	I took a surveying class in high school and immediately was hired on a state construction survey crew. The project engineer crew trained employees to do inspection and office engineering. I later became an assistant project engineer, but filled the role of the project engineer when needed. The position of the concurrent review engineer was a natural move since I had been doing the work in the field.	
29	10/6/14	15 years at DOT with the last 12 in the Construction Section. 10 years as a Project Manager and the last 1.5 years as the Regional Construction Engineer.	
30	10/6/14	Most of education regarding documenting construction administration has been on-the-job training provided by senior project staff.	
31	10/6/14	I worked as a grade inspector for 30 years and gained the experience needed to become a project engineer. I have taken writing classes to help with change orders and directives. This was very useful.	
32	10/6/14	specific NHI courses regarding documentation of construction contract work.	
33	10/4/14	most of my experience with dot has been in materials. documentation precision for sampling and testing is vital for a quality product. we make documentation of everything we do. including weighing aggregate before and after washing them and running them through our gilsons or rotap machines. After testing another qualified personel double checks the work performed. then all documentation is copied. put into job summaries, sent to rovers, and our project engineers. we document everything. Aggregate testing, binder tests, asphalt burns.. everything.	
34	10/4/14	I have experience in many roles and on many projects. We do not focus training on documentation but it is somehow involved in most construction orientated training.	
35	10/4/14	Employed by DOT from 1975 through 1985 as a Seasonal Technician, 1985 through 1991 as an Engineering Assistant, and from 1991 through present as a Project Engineer.	
36	10/4/14	15 years doing grade and bridge inspection, DOT training in office documentation and project engineer documentation. Masers Degree in Arctic Engineering. BS=Technology! ASU CE Program: two years of schooling.[Worked on contractor side of administration for three years.[	
37	10/4/14	School of hard knocks. (Learn from others mistakes).	
38	10/3/14	OTJT, school of hard knocks	
39	10/3/14	DOT Highway COnstructioon for the last 38 seasons, last 24 years as Project Engineer.	
40	10/3/14	Materials testing and it's Documentation from conducting the tests to checking results with specifications.	
41	10/3/14	We get in-house training (annually) on for project documention on a regular basis.	
42	10/3/14	AK DOT annual Spring Fling. Be a project engineer for about 11 years.	
43	10/3/14	Attended an Audit Training Session through a Northern Region employee specializing in Auditing and project documentation for 2 days. With my experience, having great documentation through Daily Reports, source documents, and photos helps out in case of claims, etc.	
44	10/3/14	niche documentation, atypical to Dept SOPs	
45	10/3/14	Worked 4 years as Project Engineer/Office Engineer, and helped QA reviewing project files during closeout in winters. All my experience is from on job training by other experienced staff.	
46	10/3/14	The DoT uses mostly OJT and a few days after signing on to instruct on documentation for new techs and interns. Prior education and experience is limited. Interns with engineering experience are often a liability because they do not have construction experience. Techs hired through the union are often more reliable with less liability.	
47	10/3/14	I had initially started as a consultant with a private sector company a couple years ago working on an airport project. I am now working for the AKDOT and have learned through my job how to fill out forms and to track necessary paperwork to fulfill necessary testing frequencies on projects.	
48	10/3/14	4 seasons as an office engineer, most all training was OJT, very little training was structured. I have Civil Engineering Degree.[	
49	10/2/14	WAQTC, SWPPP, Traffic Supervisor Certs.	
50	10/1/14	writing down as much information as possible to accurately depict the construction activities is the ultimate goal	

Please provide other information about your experience, training, education and level of expertis

Answer Options

answered question	**61%**
skipped question	

Number	Response Date	Response Text	Categories
1	10/10/14	worked on construction project in material testing and reporting to Office E	
2	10/9/14	I spent 5 years as an Office Engineer Technical skills can be learned by almost anyone, if you have the right pe (etc.) - those are the things that generate a distinction between a success ▯	
3	10/7/14	On a side note - this is a completely broad question. I'm not sure I can re:	
4	10/7/14	Rec'd in house training on construction administration issues.	
5	10/7/14	Professional Engineer, have attended DOT construction administration cc I have been with DOT for about 8 years now and have served as the Con design engineer and an EIT (Engineer in Training) and in addition to cons	
6	10/7/14	position. Most of my training for the duties of this position, like learning to	
7	10/7/14	On the job experience	
8	10/7/14	As a consultant we routinely keep certifications current. WAQTC, Traffic C	
9	10/7/14	I have been in Project Management in the private sector 5 yrs and with th	
10	10/7/14	No training for documenting administration.	
11	10/7/14	My experience with documentation is limited to materials and the material	
12	10/6/14	BSCE, A short, basic training regarding how to document was in the 1980 I am with the AKDOT almost 30 years worked on Highway, Airport, and ot These project required everyday documentation and testings on asphaltic Material Control & Acceptance-Quality Management, Soils & Foundations Project Engineer's Meeting, Yearly Spring Training (in house), Yearly Env	
13	10/6/14	I obtained a professional engieer's license and CEBS. Multiple years (7) of technician work/training both on site and in the lab wo	
14	10/6/14	On site Lead Inspector/Grade boss gave the challenge of managing and	
15	10/6/14	Background in Materials	
16	10/6/14	Please define construction admin better.	
17	10/6/14	NHI coursed related to contract administration in the field.	
18	10/6/14	My past jobs had a lot of documenting of work performed, plus I've had sc	
19	10/6/14	I worked for the AKDOT for 32 years, retiring as the Regional Constructio	
20	10/6/14	Master of Arts Degree in Teaching	
21	10/6/14	I don't have any, I've only been here 2 months. My job is mostly to review	
22	10/6/14	I am a registered profession civil engineer with 40 years of experience in t civil/marine projects.	
23	10/6/14	Learning to use Citrix to fill out Daily Work Reports.	
24	10/6/14	Some Contract Law classes, Construction Scheduling Software training.	
25	10/6/14	I have been involved with construction for six years and a storm water spe	
26	10/6/14	attended source document/audit classes through Northern Region employ	
27	10/6/14	Over 24 years working on federal and state funded construction projects, worksite traffic supervisory training, hazardous materials training, construc	
28	10/6/14	I took a surveying class in high school and immediately was hired on a sta concurrent review engineer was a natural move since I had been doing th	
29	10/6/14	15 years at DOT with the last 12 in the Construction Section. 10 years as	
30	10/6/14	Most of education regarding documenting construction administration has	
31	10/6/14	I worked as a grade inspector for 30 years and gained the experience nee	
32	10/6/14	specific NHI courses regarding documentation of construction contract wo	
33	10/4/14	most of my experience with dot has been in materials. documentation pre qualified personel double checks the work performed. then all documenta	
34	10/4/14	I have experience in many roles and on many projects. We do not focus t	
35	10/4/14	Employed by DOT from 1975 through 1985 as a Seasonal Technician, 19	
36	10/4/14	15 years doing grade and bridge inspection. DOT training in office docum BS-Technology▯ ASU CE Program: two years of schooling.▯ Worked on contractor side of administration for three years.▯	
37	10/4/14	School of hard knocks. (Learn from others mistakes).	
38	10/3/14	OTJT, school of hard knocks	
39	10/3/14	DOT Highway COnstructioon for the last 38 seasons. last 24 years as Pr	
40	10/3/14	Materials testing and it's Documentation from conducting the tests to chec	
41	10/3/14	We get in-house training (anually) on for project documention on a regula	
42	10/3/14	AK DOT annual Spring Fling. Be a project engineer for about 11 years.	
43	10/3/14	Attended an Audit Training Session through a Northern Region employee	
44	10/3/14	niche documentation, atypical to Dept SOPs	
45	10/3/14	Worked 4 years as Project Engineer/Office Engineer, and helped QA revi	
46	10/3/14	The DoT uses mostly OJT and a few days after signing on to instruct on d with less liability.	
47	10/3/14	I had initially started as a consultant with a private sector company a coup	
48	10/3/14	4 seasons as an office engineer. most all training was OJT. very little train I have Civil Engineering Degree.▯	
49	10/2/14	WAQTC, SWPPP, Traffic Supervisor Certs.	
50	10/1/14	Writing down as much information as possible to accurately depict the cor	


Relative Level of Effort Documenting Different Construction Administration Activities
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
Producing and maintaining Materials Testing Reports
Producing and managing Inspection Reports
Producing and maintaining SWPPP Related Reports/Logs
Producing Source Documents
Producing Daily Reports/Diaries
Producing and maintaining Change Orders/IWAs
Producing and maintaining T&M, Force Account, or...
Producing and maintaining Submittal Tracking/MCLs
Producing Pay Estimates
Producing Digital Photo Logs
Schedules
Producing and maintaining Red-lines & As-built...
Producing and maintaining Meeting Documents (i.e....
Producing and maintaining Traffic Control Reports/Logs
Producing and maintaining Non-SWPPP Environmental...
Permitting and Permit Document Maintenance
Producing and maintaining Personnel Records (e.g....
Maintaining Title 36 - Labor Compliance Documents
Producing and maintaining DBE Requirements/DBE...

Please indicate the relative level of effort required in your position to process or handle the following types of construction documentation activiti

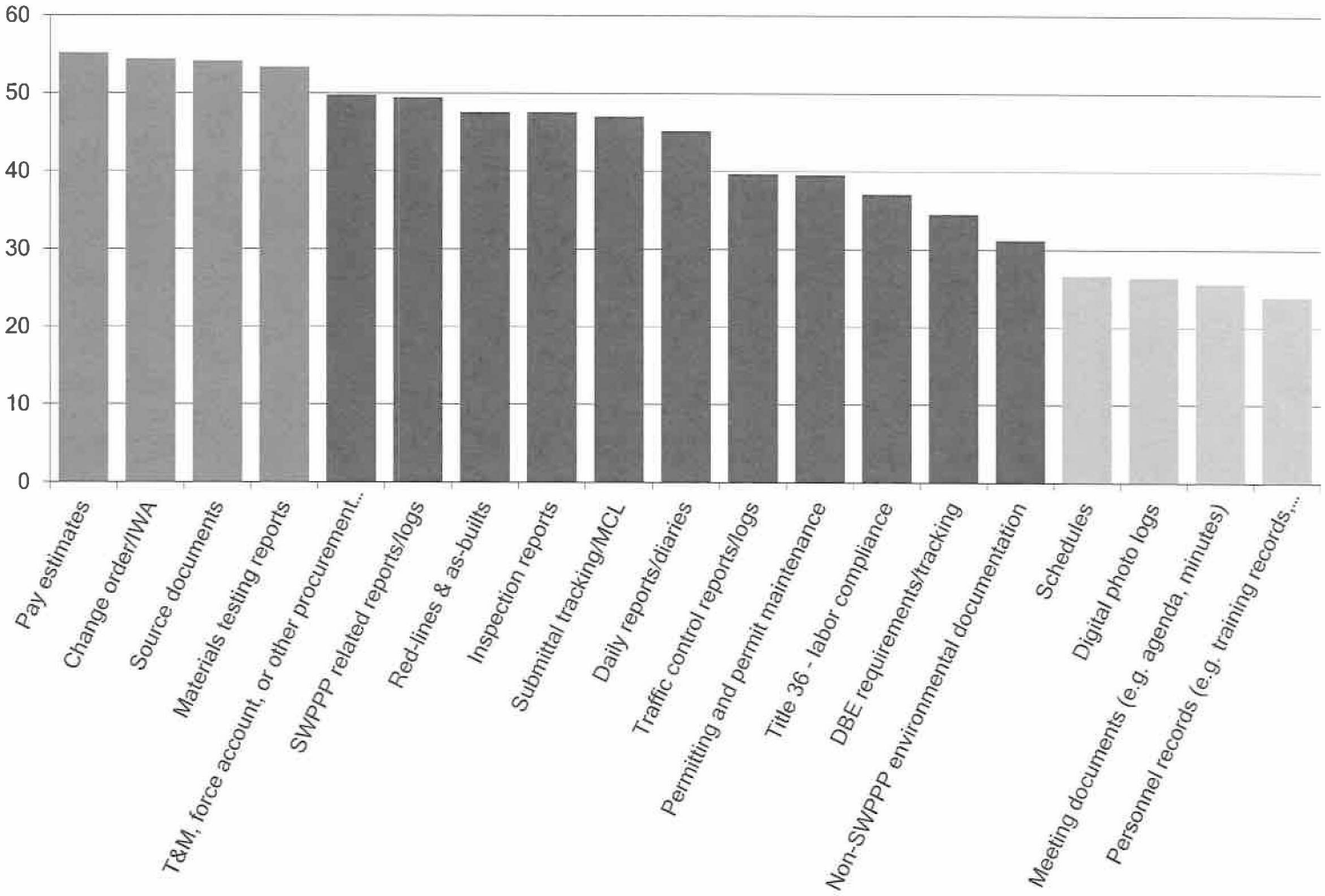
Answer Options	1 - Least effort required	2		3		4
	a	b		c		d
Producing and maintaining Materials	8	2	4	6	18	3
Producing and managing Inspection	7	4	8	6	18	8
Producing and maintaining SWPPP	10	4	8	2	6	3
Producing Source Documents	7	7	14	4	12	3
Producing Daily Reports/Diaries	5	12	24	4	12	4
Producing and maintaining Change	3	5	10	9	27	3
Producing and maintaining T&M, Force	7	7	14	5	15	4
Producing and maintaining Submittal	5	3	6	10	30	3
Producing Pay Estimates	5	5	10	6	18	3
Producing Digital Photo Logs	8	9	18	7	21	8
Schedules	5	8	16	10	30	5
Producing and maintaining Red-lines & As-	7	5	10	10	30	7
Producing and maintaining Meeting	9	10	20	10	30	6
Producing and maintaining Traffic Control	12	5	10	6	18	7
Producing and maintaining Non-SWPPP	14	4	8	8	24	5
Permitting and Permit Document	13	11	22	7	21	2
Producing and maintaining Personnel	12	3	6	7	21	6
Maintaining Title 36 - Labor Compliance	14	10	20	8	24	2
Producing and maintaining DBE Requirements/DBE tracking	10	10	20	6	18	5
Comments:						

es... (1 represents the lowest perceived level of effort required or least work, and 9 represents the highest perceived level of effort or most work.)

	5		6		7		8	
	e		f		g		h	8
12	3	15	11	66	6	42	7	56
32	11	55	2	12	7	49	7	56
12	4	20	3	18	4	28	6	48
12	13	65	2	12	10	70	3	24
16	8	40	3	18	5	35	9	72
12	7	35	6	36	4	28	3	24
16	10	50	3	18	7	49	7	56
12	10	50	5	30	8	56	4	32
12	9	45	5	30	7	49	3	24
32	11	55	1	6	1	7	5	40
20	7	35	5	30	5	35	4	32
28	9	45	7	42	4	28	3	24
24	11	55	2	12	2	14	4	32
28	4	20	3	18	7	49	2	16
20	10	50	6	36	0	0	3	24
8	4	20	2	12	5	35	4	32
24	14	70	3	18	2	14	1	8
8	7	35	3	18	5	35	2	16
20	11	55	3	18	1	7	0	0

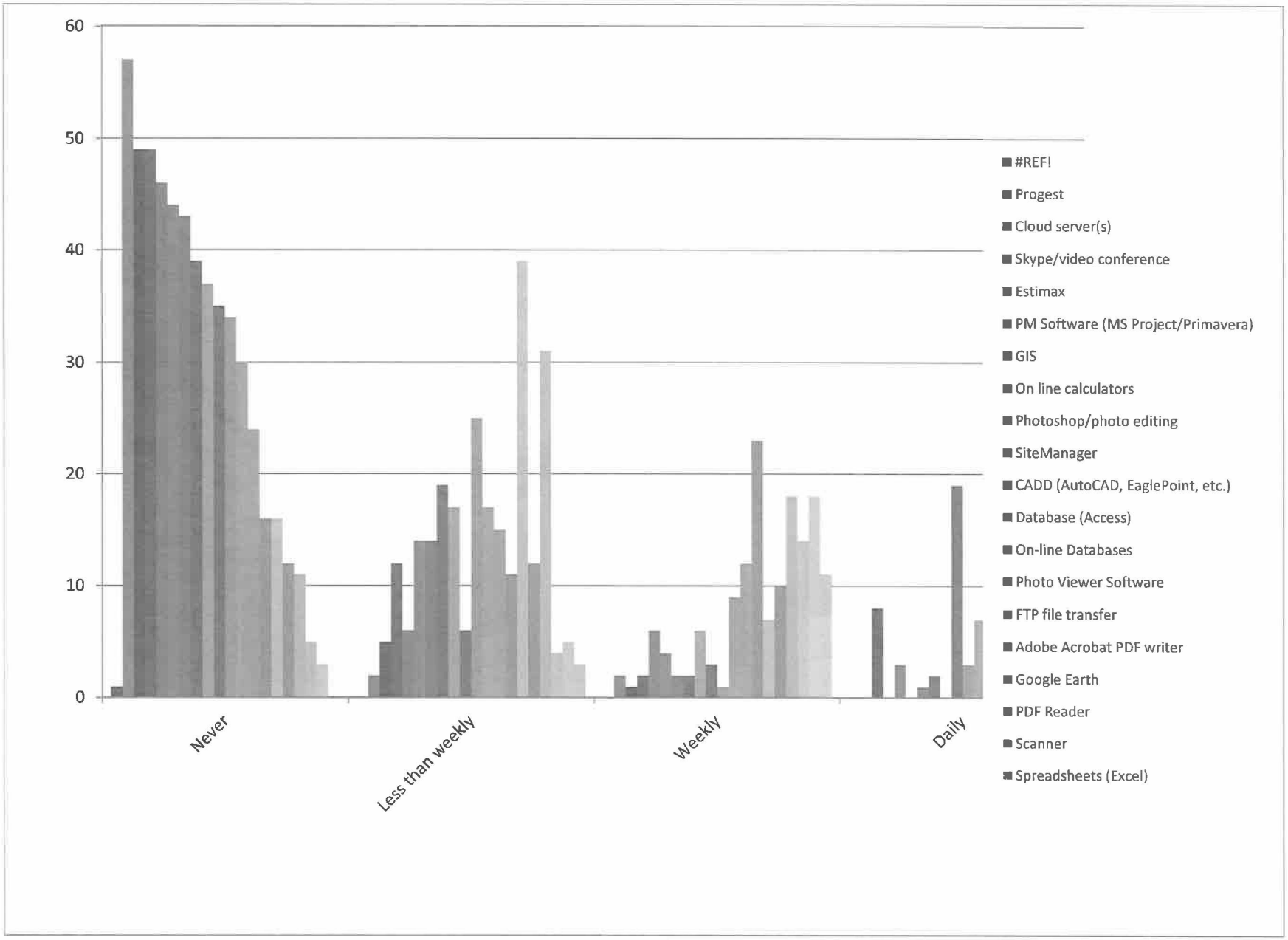
9 - Highest effort required		N/A			Rating Average	Response Count
i	9xi					
9	81	8	33	32.7	5.65	63
6	54	6	32	31.7	5.49	63
16	144	11	31	31.4	5.37	63
8	72	8	31	31.1	5.12	63
6	54	10	30	29.6	5.05	65
11	99	12	29	29.1	5.02	63
5	45	9	29	29.0	5.02	64
5	45	10	28	28.4	4.93	66
7	63	13	27	27.0	4.91	64
4	36	9	24	23.8	4.33	62
2	18	11	23	23.3	4.21	66
1	9	13	23	23.3	4.14	65
2	18	8	23	22.9	4.13	63
4	36	15	21	21.3	3.82	64
2	18	12	20	20.2	3.73	64
3	27	13	20	19.7	3.73	64
1	9	15	19	18.6	3.71	64
1	9	13	18	18.4	3.44	65
1	9	17	16	15.6	3.34	64
						15
					answered question	**66**
					skipped question	**16**

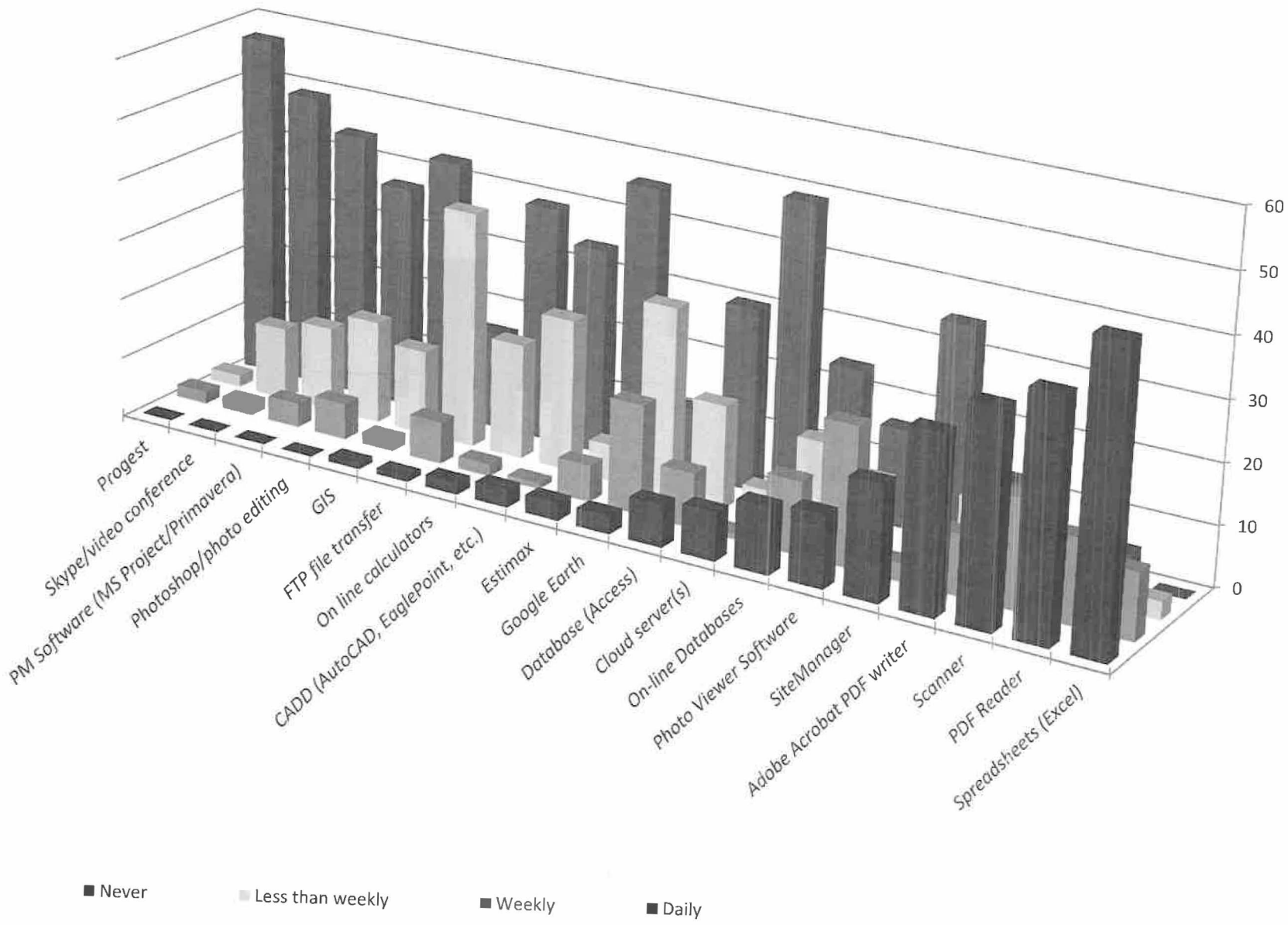
Ranking of documentation tasks by percieved impact on project close out



Which of the following electronic/digital tools do you use more or less frequently for generating and/or processing construction administration documents?

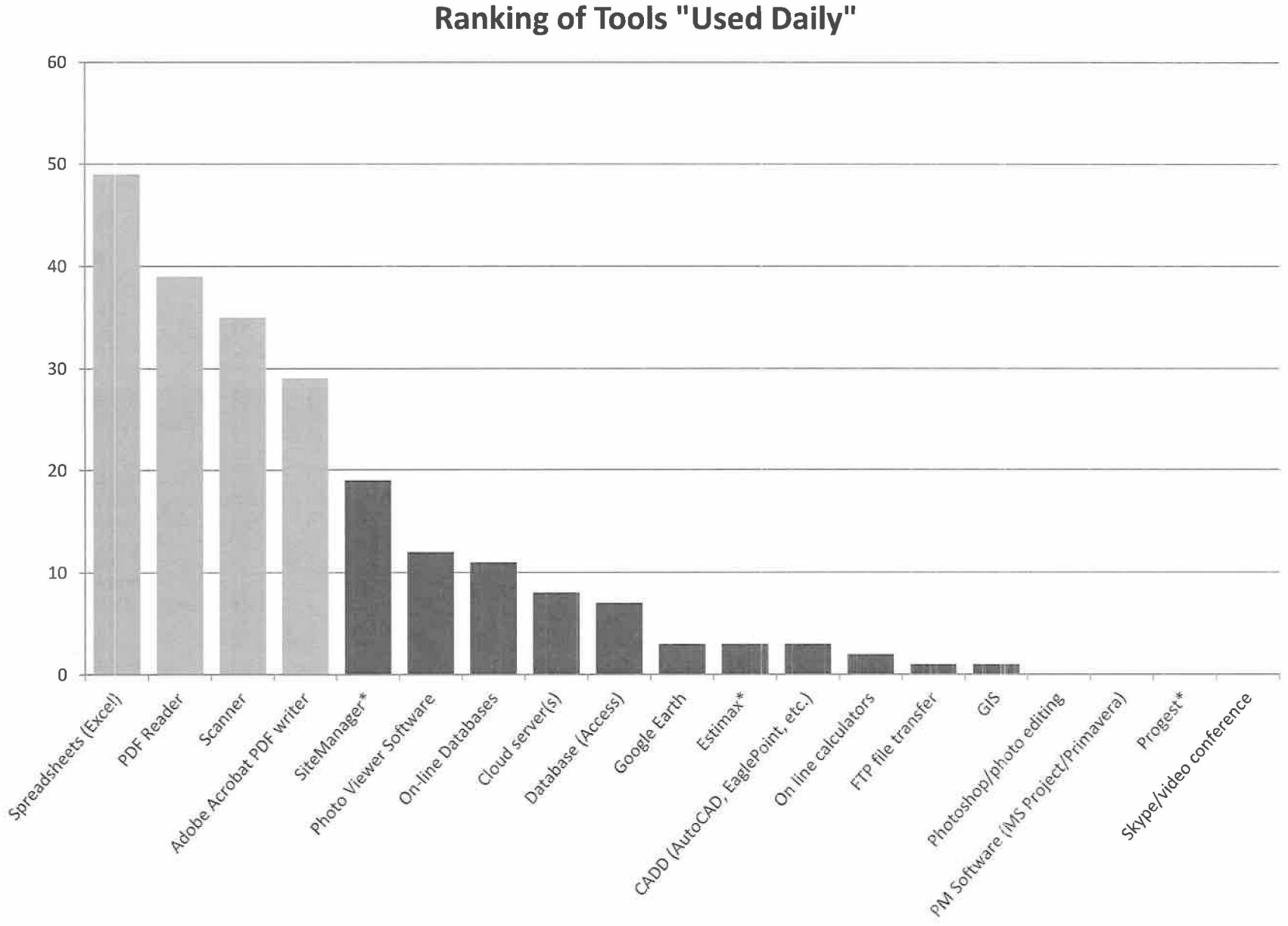
Answer Options	Never	Less than weekly	Weekly	Daily	Response Count	77%
Progest	57	2	2	0	62	
Cloud server(s)	49	5	1	8	61	
Skype/video conference	49	12	2	0	63	
Estimax	46	6	6	3	63	
PM Software (MS Project/Primavera)	44	14	4	0	62	
GIS	43	14	2	1	62	
On line calculators	39	19	2	2	63	
Photoshop/photo editing	37	17	6	0	63	
SiteManager	35	6	3	19	61	
CADD (AutoCAD, EaglePoint, etc.)	34	25	1	3	63	
Database (Access)	30	17	9	7	63	
On-line Databases	24	15	12	11	62	
Photo Viewer Software	16	11	23	12	60	
FTP file transfer	16	39	7	1	63	
Adobe Acrobat PDF writer	12	12	10	29	63	
Google Earth	11	31	18	3	61	
PDF Reader	5	4	14	39	63	
Scanner	3	5	18	35	62	
Spreadsheets (Excel)	0	3	11	49	60	
Comments:					4	
				answered question	**63**	
				skipped question	**18**	
	550	257	151	222	1180	
	47%	22%	13%	19%	100%	


60
50
40
30
20
10
0
Never
Less than weekly
Weekly
Daily
#REF!
Progest
Cloud server(s)
Skype/video conference
Estimax
PM Software (MS Project/Primavera)
GIS
On line calculators
Photoshop/photo editing
SiteManager
CADD (AutoCAD, EaglePoint, etc.)
Database (Access)
On-line Databases
Photo Viewer Software
FTP file transfer
Adobe Acrobat PDF writer
Google Earth
PDF Reader
Scanner
Spreadsheets (Excel)


60
50
40
30
20
10
0
Progest
Skype/video conference
PM Software (MS Project/Primavera)
Photoshop/photo editing
GIS
FTP file transfer
On line calculators
CADD (AutoCAD, EaglePoint, etc.)
Estimax
Google Earth
Database (Access)
Cloud server(s)
On-line Databases
Photo Viewer Software
SiteManager
Adobe Acrobat PDF writer
Scanner
PDF Reader
Spreadsheets (Excel)
Never
Less than weekly
Weekly
Daily

Which of the following electronic/digital tools do you use more or less frequently for generating and/or processing construction administration documents?

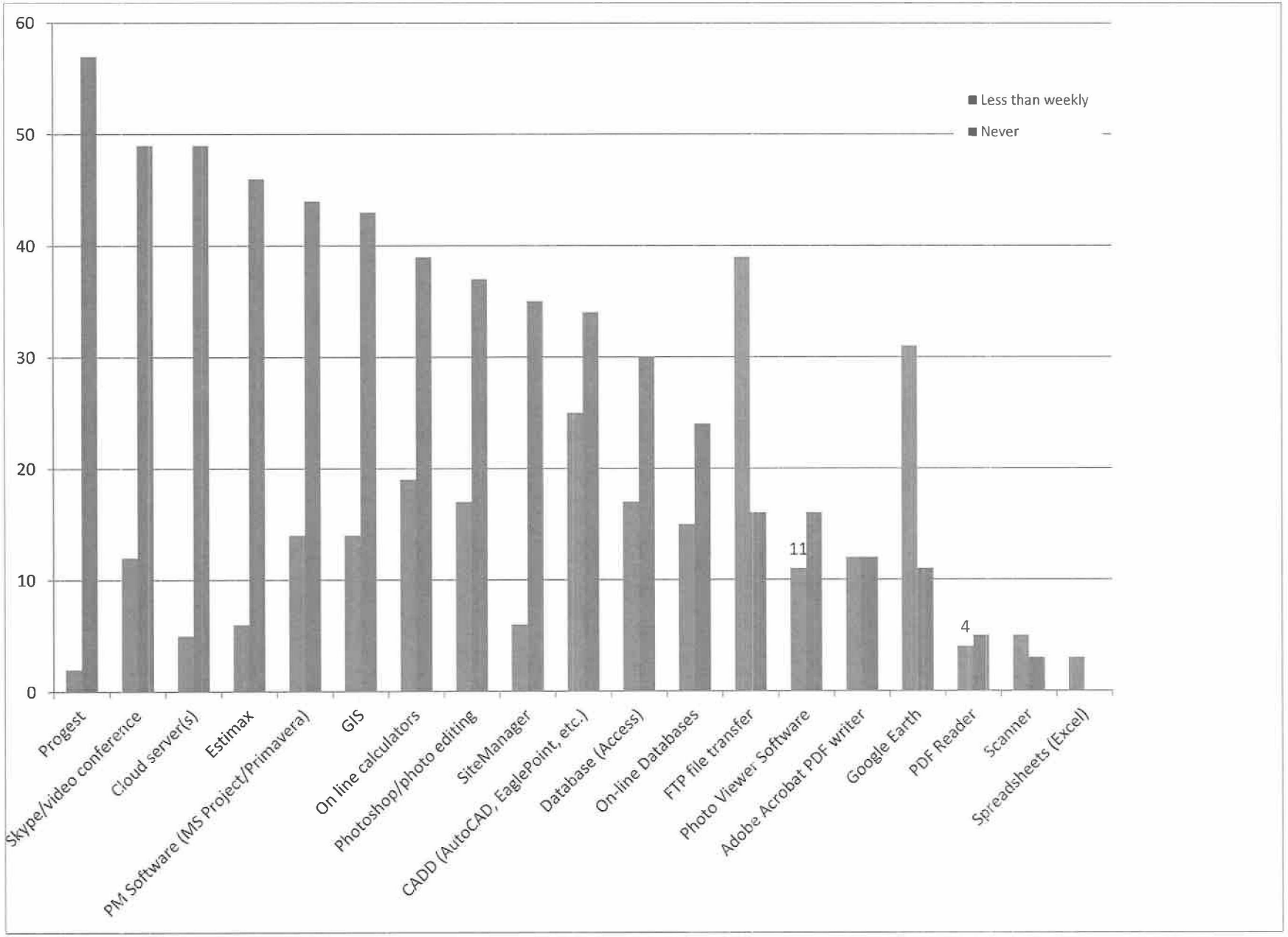
Answer Options	Never	Less than weekly	Weekly	Daily	Response Count	77%
Spreadsheets (Excel)	0	3	11	49	63	Less than weekly Median 17.8
PDF Reader	5	4	14	39	62	
Scanner	3	5	18	35	61	
Adobe Acrobat PDF writer	12	12	10	29	63	
SiteManager	35	6	3	19	63	
Photo Viewer Software	16	11	23	12	62	
On-line Databases	24	15	12	11	62	
Cloud server(s)	49	5	1	8	63	
Database (Access)	30	17	9	7	63	
Google Earth	11	31	18	3	61	
Estimax	46	6	6	3	63	
CADD (AutoCAD, EaglePoint, etc.)	34	25	1	3	63	
On line calculators	39	19	2	2	62	
FTP file transfer	16	39	7	1	60	
GIS	43	14	2	1	63	
Photoshop/photo editing	37	17	6	0	63	
PM Software (MS Project/Primavera)	44	14	4	0	61	
Skype/video conference	49	12	2	0	63	
Progest	57	2	2	0	62	
Comments:					4	
				answered question	63	
				skipped question	18	


Ranking of Tools "Used Daily"
60
50
40
30
20
10
0
Spreadsheets (Excel)
PDF Reader
Scanner
Adobe Acrobat PDF writer
SiteManager*
Photo Viewer Software
On-line Databases
Cloud server(s)
Database (Access)
Google Earth
Estimax*
CADD (AutoCAD, EaglePoint, etc.)
On line calculators
FTP file transfer
GIS
Photoshop/photo editing
PM Software (MS Project/Primavera)
Progest*
Skype/video conference

Which of the following electronic/digital tools do you use more or less frequently for generating and/or processing construction administration documents?

Answer Options	Never	Less than weekly	Weekly	Daily	Response Count	77%
Spreadsheets (Excel)	0	3	11	49	63	
PDF Reader	5	4	14	39	62	
Scanner	3	5	18	35	61	
Adobe Acrobat PDF writer	12	12	10	29	63	
SiteManager*	35	6	3	19	63	
Photo Viewer Software	16	11	23	12	62	
On-line Databases	24	15	12	11	62	
Cloud server(s)	49	5	1	8	63	
Database (Access)	30	17	9	7	63	
Google Earth	11	31	18	3	61	
Estimax*	46	6	6	3	63	
CADD (AutoCAD, EaglePoint, etc.)	34	25	1	3	63	
On line calculators	39	19	2	2	62	
FTP file transfer	16	39	7	1	60	
GIS	43	14	2	1	63	
Photoshop/photo editing	37	17	6	0	63	
PM Software (MS Project/Primavera)	44	14	4	0	61	
Progest*	57	2	2	0	63	
Skype/video conference	49	12	2	0	62	
Comments:					4	
				answered question	**63**	
				skipped question	**18**	

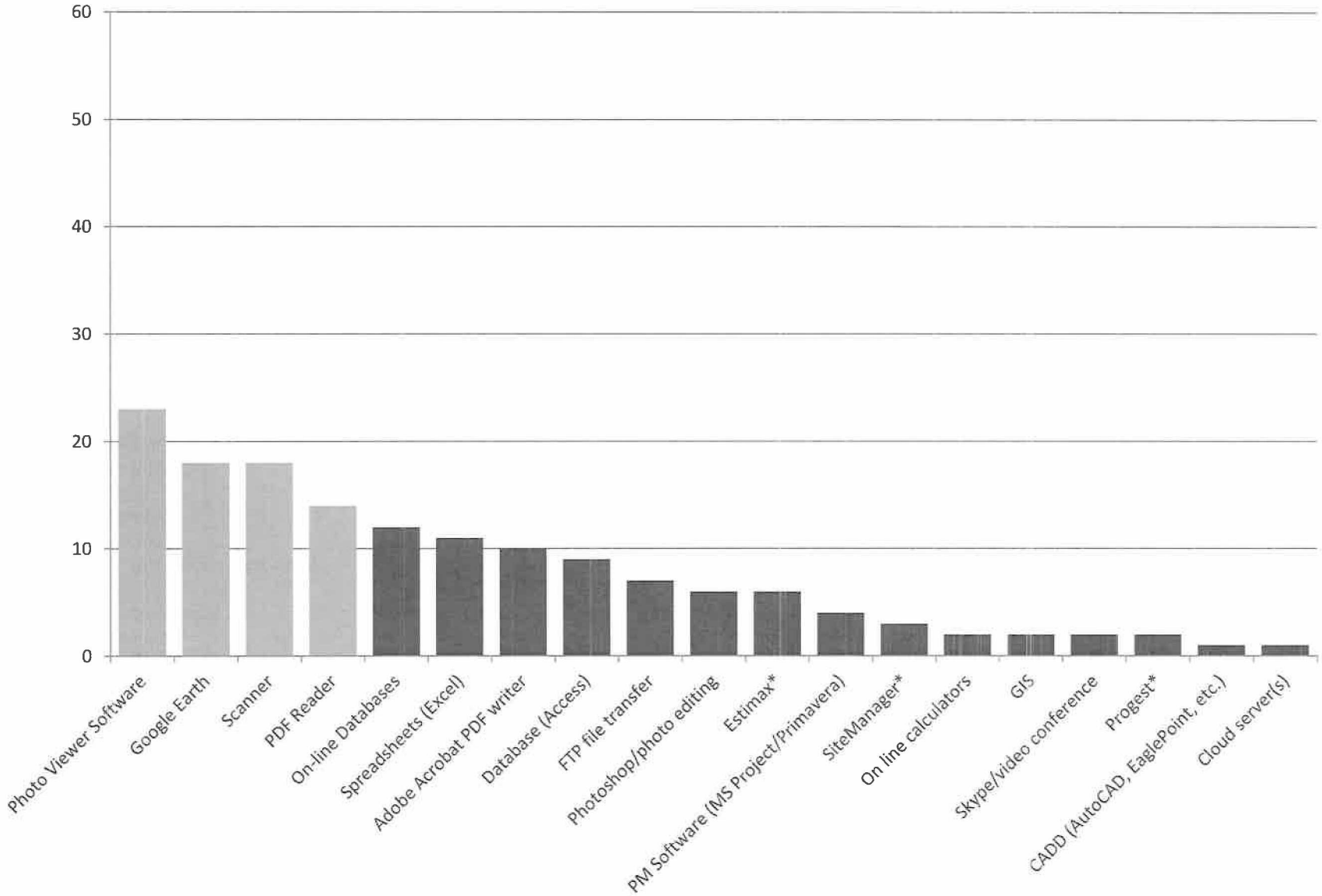
Daily Median 3


60
50
40
30
20
10
0
Less than weekly
Never
11
4
Progest
Skype/video conference
Cloud server(s)
Estimax
PM Software (MS Project/Primavera)
GIS
On line calculators
Photoshop/photo editing
SiteManager
CADD (AutoCAD, EaglePoint, etc.)
Database (Access)
On-line Databases
FTP file transfer
Photo Viewer Software
Adobe Acrobat PDF writer
Google Earth
PDF Reader
Scanner
Spreadsheets (Excel)

Which of the following electronic/digital tools do you use more or less frequently for generating and/or processing construction administration documents?

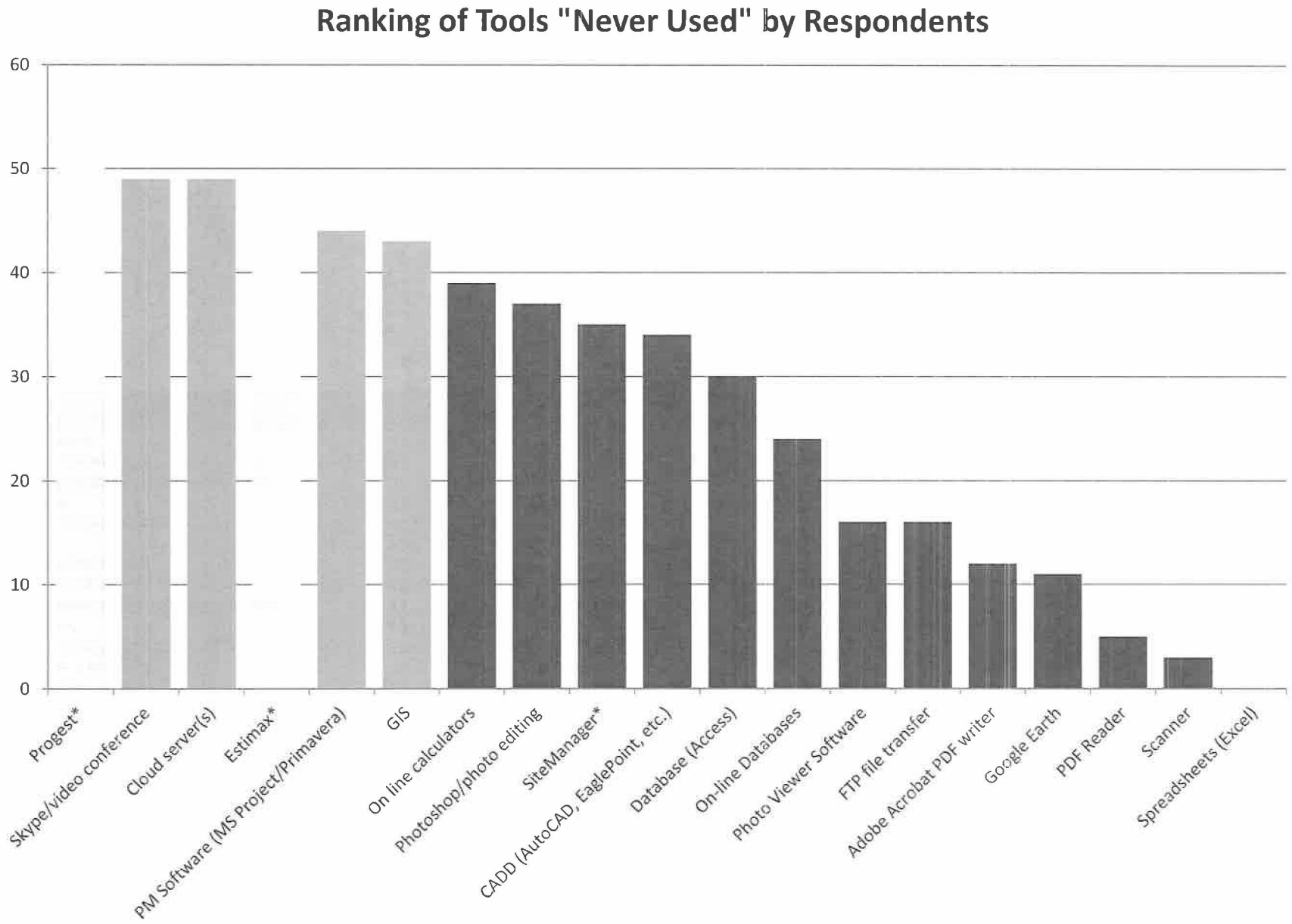
Answer Options	Never	Less than weekly	Weekly	Daily	Response Count	77%
Progest	57	2	2	0	62	
Skype/video conference	49	12	2	0	61	
Cloud server(s)	49	5	1	8	63	
Estimax	46	6	6	3	63	
PM Software (MS Project/Primavera)	44	14	4	0	62	
GIS	43	14	2	1	62	
On line calculators	39	19	2	2	63	
Photoshop/photo editing	37	17	6	0	63	
SiteManager	35	6	3	19	61	
CADD (AutoCAD, EaglePoint, etc.)	34	25	1	3	63	
Database (Access)	30	17	9	7	63	
On-line Databases	24	15	12	11	62	
FTP file transfer	16	39	7	1	60	
Photo Viewer Software	16	11	23	12	63	
Adobe Acrobat PDF writer	12	12	10	29	63	
Google Earth	11	31	18	3	61	
PDF Reader	5	4	14	39	63	
Scanner	3	5	18	35	62	
Spreadsheets (Excel)	0	3	11	49	60	
Comments:					4	
				answered question	**63**	
				skipped question	**18**	

Ranking of Tools "Used Weekly"



Which of the following electronic/digital tools do you use **more or less frequently for generating and/or processing** construction administration documents?

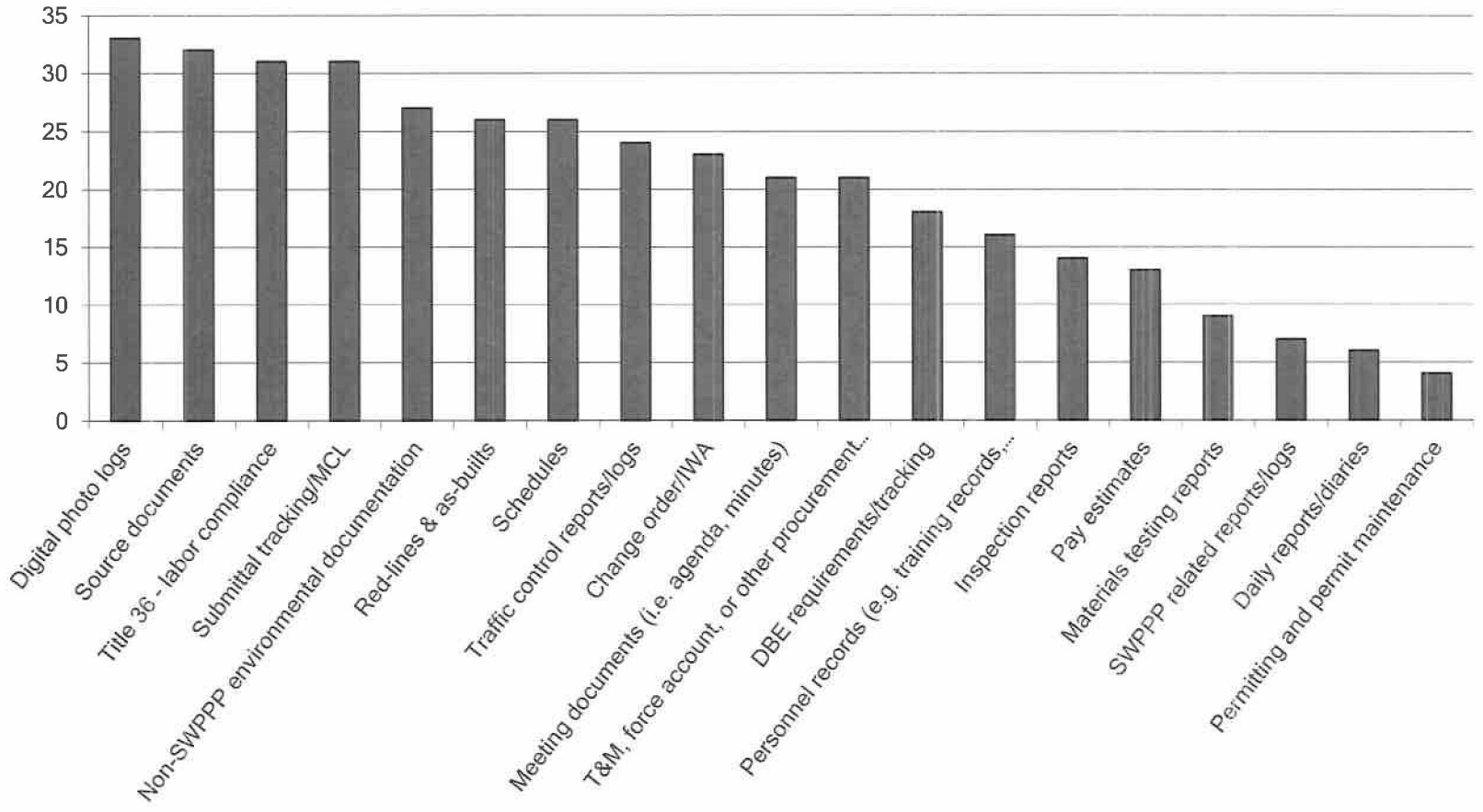
Answer Options	Never	Less than weekly	Weekly	Daily	Response Count	77%
Photo Viewer Software	16	11	23	12	63	Less than weekly Median 17.8
Google Earth	11	31	18	3	62	
Scanner	3	5	18	35	61	
PDF Reader	5	4	14	39	63	
On-line Databases	24	15	12	11	63	
Spreadsheets (Excel)	0	3	11	49	62	
Adobe Acrobat PDF writer	12	12	10	29	62	
Database (Access)	30	17	9	7	63	
FTP file transfer	16	39	7	1	63	
Photoshop/photo editing	37	17	6	0	61	
Estimax*	46	6	6	3	63	
PM Software (MS Project/Primavera)	44	14	4	0	63	
SiteManager*	35	6	3	19	62	
On line calculators	39	19	2	2	60	
GIS	43	14	2	1	63	
Skype/video conference	49	12	2	0	63	
Progest*	57	2	2	0	61	
CADD (AutoCAD, EaglePoint, etc.)	34	25	1	3	63	
Cloud server(s)	49	5	1	8	62	
Comments:					4	
				answered question		63
				skipped question		18


Ranking of Tools "Never Used" by Respondents
60
50
40
30
20
10
0
Progest*
Skype/video conference
Cloud server(s)
Estimax*
PM Software (MS Project/Primavera)
GIS
On line calculators
Photoshop/photo editing
SiteManager*
CADD (AutoCAD, EaglePoint, etc.)
Database (Access)
On-line Databases
Photo Viewer Software
FTP file transfer
Adobe Acrobat PDF writer
Google Earth
PDF Reader
Scanner
Spreadsheets (Excel)

Which of the following electronic/digital tools do you use more or less frequently for generating and/or processing construction administration documents?

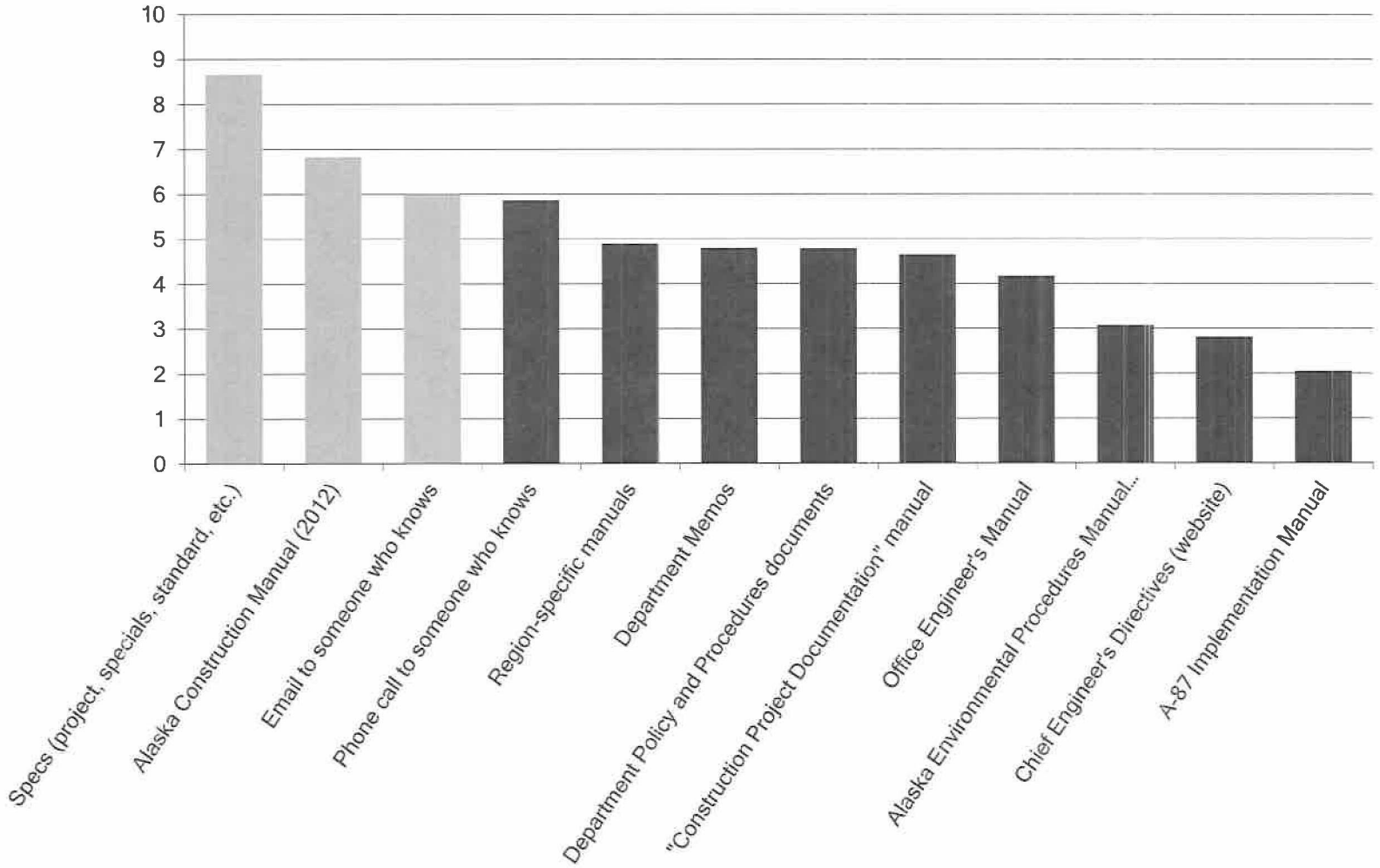
Answer Options	Never	Less than weekly	Weekly	Daily	Response Count	77%
Progest*	57	2	2	0	62	
Skype/video conference	49	12	2	0	61	
Cloud server(s)	49	5	1	8	63	
Estimax*	46	6	6	3	63	
PM Software (MS Project/Primavera)	44	14	4	0	62	
GIS	43	14	2	1	62	
On line calculators	39	19	2	2	63	
Photoshop/photo editing	37	17	6	0	63	
SiteManager*	35	6	3	19	61	
CADD (AutoCAD, EaglePoint, etc.)	34	25	1	3	63	
Database (Access)	30	17	9	7	63	
On-line Databases	24	15	12	11	62	
Photo Viewer Software	16	11	23	12	60	
FTP file transfer	16	39	7	1	63	
Adobe Acrobat PDF writer	12	12	10	29	63	
Google Earth	11	31	18	3	61	
PDF Reader	5	4	14	39	63	
Scanner	3	5	18	35	62	
Spreadsheets (Excel)	0	3	11	49	60	
Comments:					4	
				answered question	63	
				skipped question	18	

Which of the following document deliverables do you expect to see on your project schedule as a deadline, a due date, a task, or the like?



Which of the following document deliverables do you expect to see on your	Response Percent	Response Count	62%
Digital photo logs	7.8%	33	
Source documents	35.3%	32	
Title 36 - labor compliance	25.5%	31	
Submittal tracking/MCL	64.7%	31	
Non-SWPPP environmental documentation	11.8%	27	
Red-lines & as-builts	31.4%	26	
Schedules	60.8%	26	
Traffic control reports/logs	51.0%	24	
Change order/IWA	45.1%	23	
Meeting documents (i.e. agenda, minutes)	13.7%	21	
T&M, force account, or other procurement	47.1%	21	
DBE requirements/tracking	27.5%	18	
Personnel records (e.g. training records,	17.6%	16	
Inspection reports	51.0%	14	
Pay estimates	60.8%	13	
Materials testing reports	52.9%	9	
SWPPP related reports/logs	62.7%	7	
Daily reports/diaries	41.2%	6	
Permitting and permit maintenance	41.2%	4	
Comments:		13	
answered question		**51**	
skipped question		**31**	

Which of the following reference materials do you use more frequently than others?

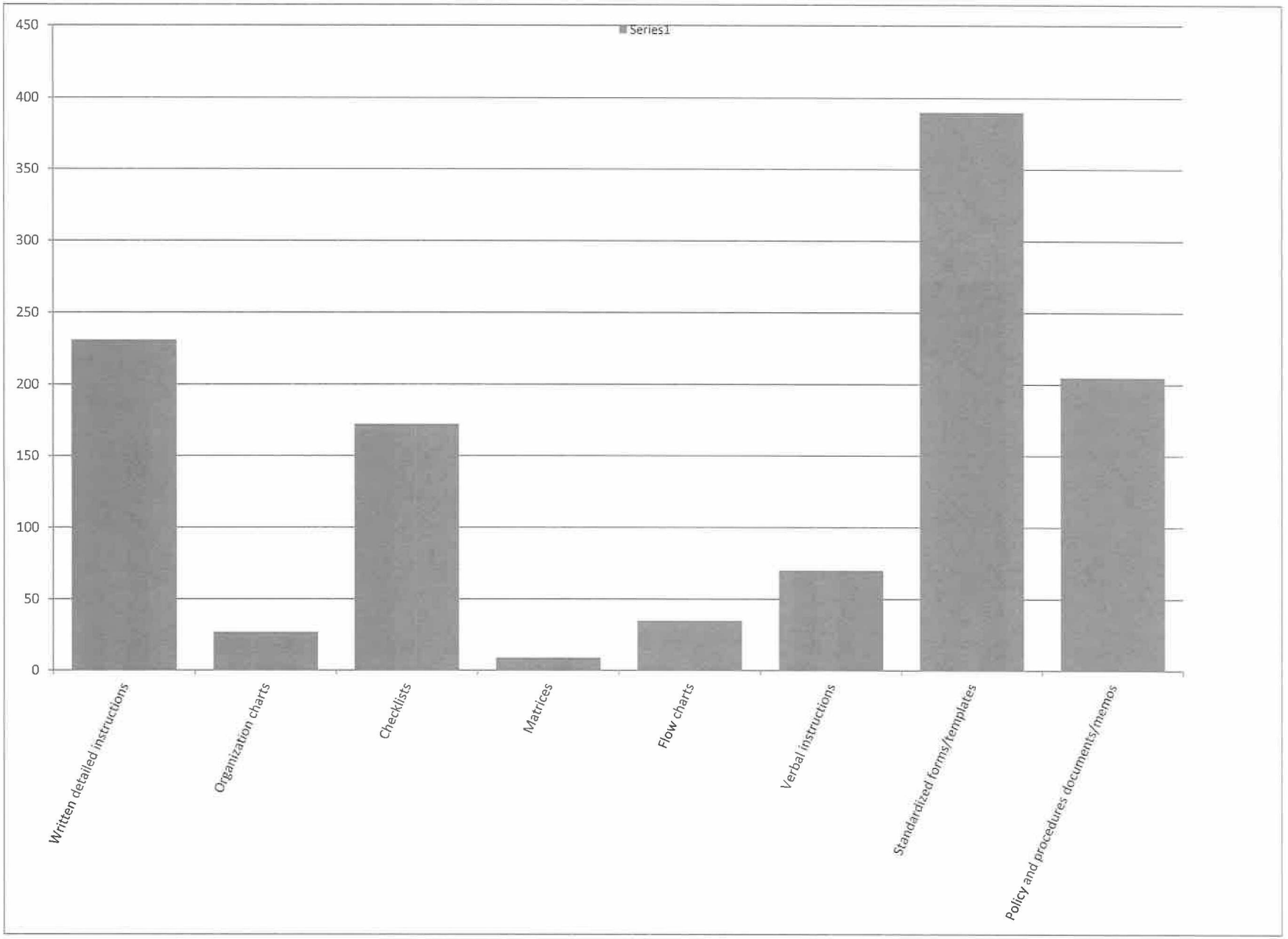


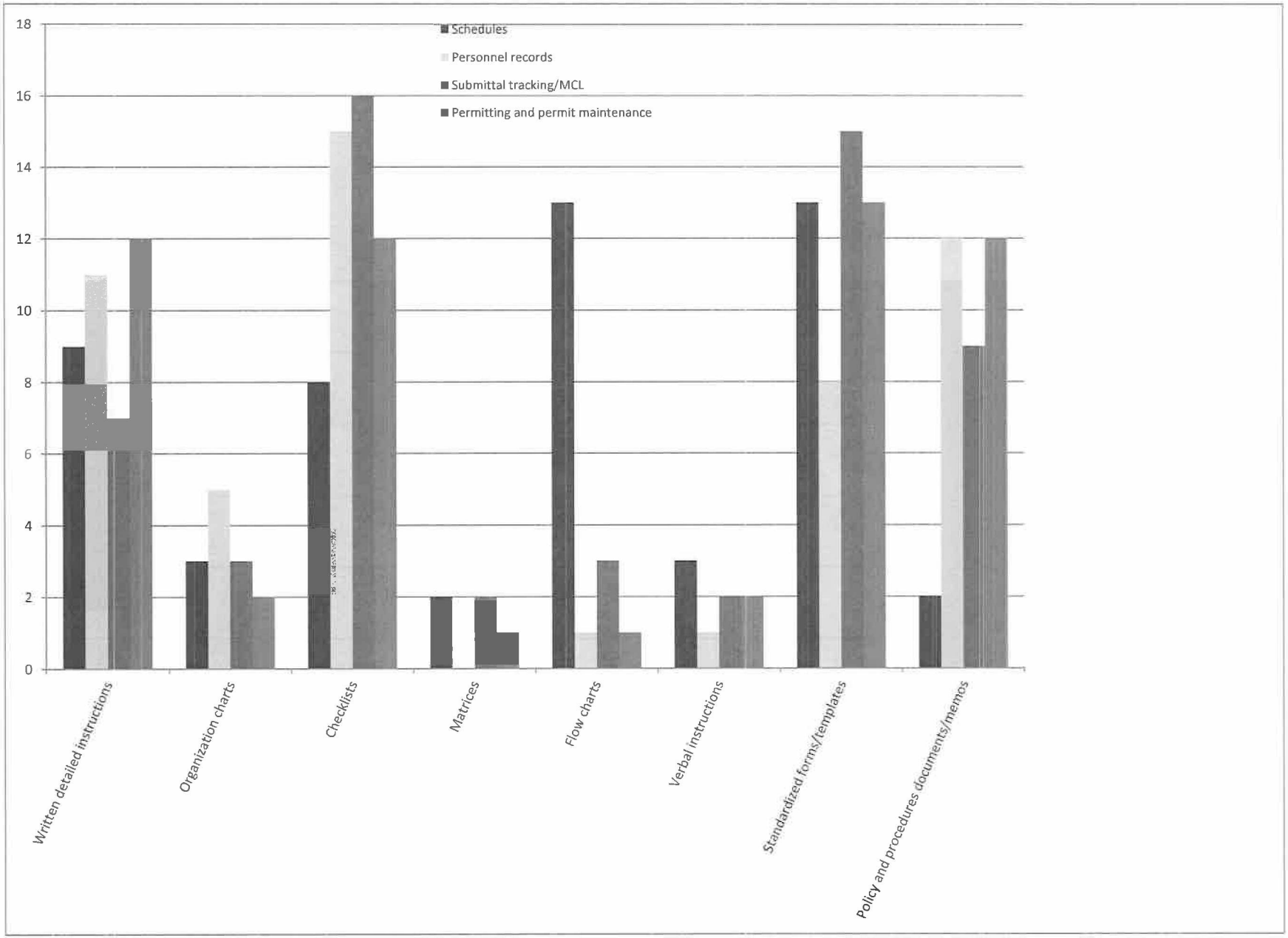
Which of the following reference materials do you use more frequently than others to determine what construction administration documents are requ

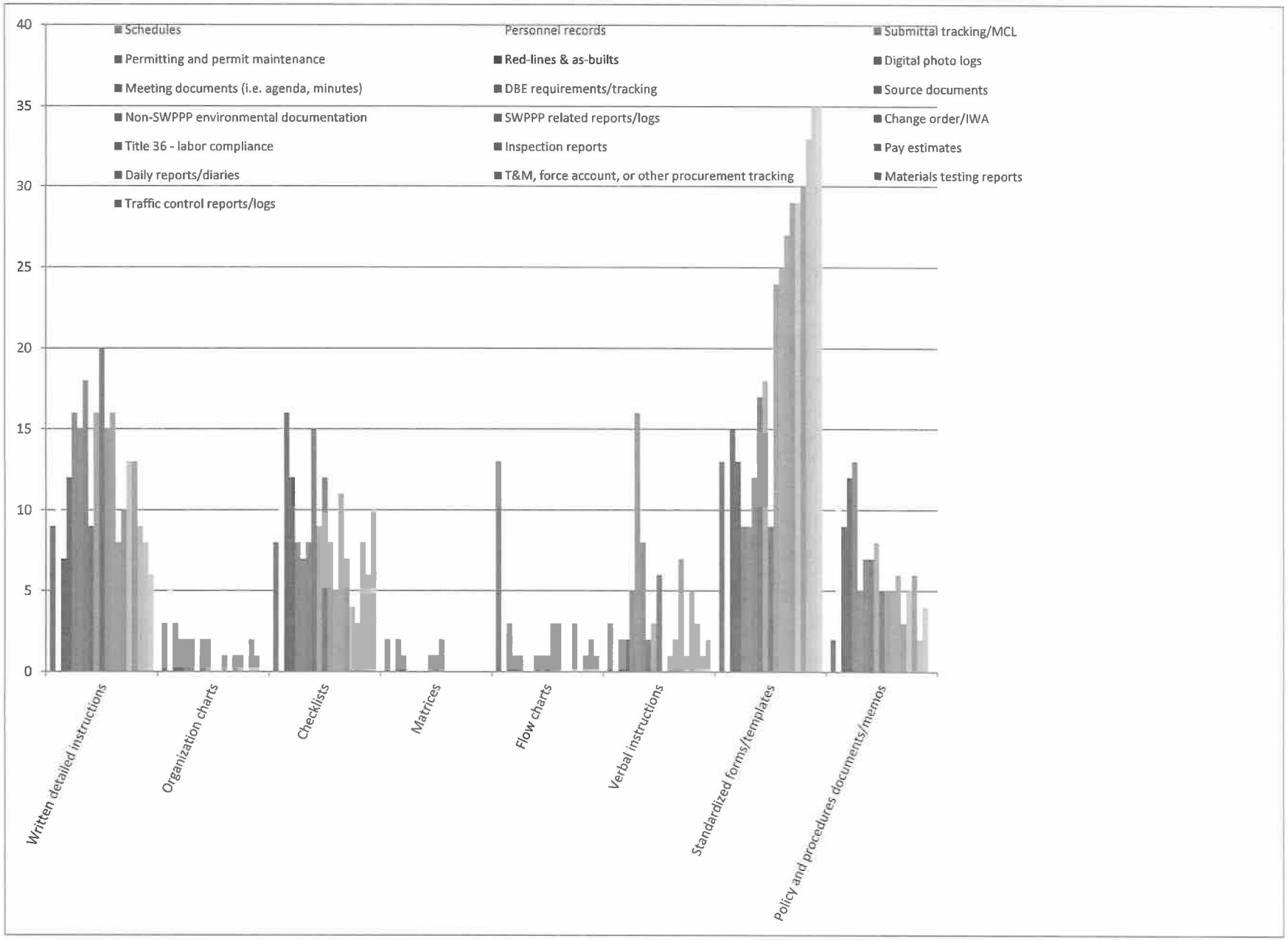
Answer Options	Never			Occasionally		
Specs (project, specials, standard, etc.)	0	0	1	0	0	1
Alaska Construction Manual (2012)	1	2	4	2	8	3
Email to someone who knows	0	6	3	4	15	4
Phone call to someone who knows	0	4	3	4	18	7
Region-specific manuals	9	6	3	2	14	5
Department Memos	4	5	8	3	22	5
Department Policy and Procedures	5	11	5	6	13	4
"Construction Project Documentation"	13	2	8	0	12	3
Office Engineer's Manual	11	6	8	7	12	3
Alaska Environmental Procedures Manual	15	17	6	5	9	3
Chief Engineer's Directives (website)	22	10	8	6	5	2
A-87 Implementation Manual	35	7	6	3	4	0
Others (please specify)						

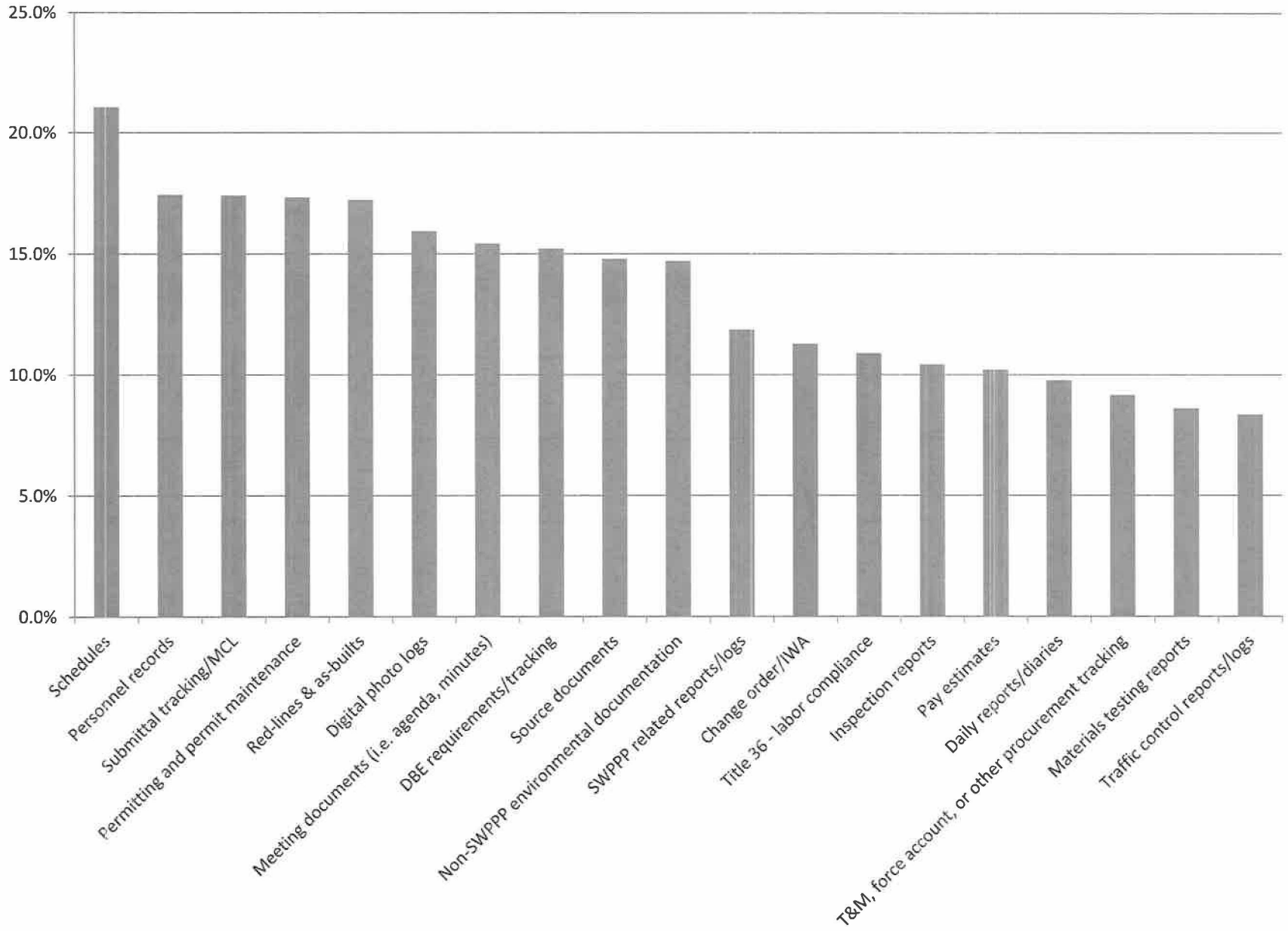
uired, who is responsible for them, or where they are routed?

		Routinely, or near daily	Rating Average	Response Count	74%
2	7	48	9	61	
13	10	18	7	58	
8	7	11	6	59	
9	5	8	6	58	
7	7	4	5	59	
4	3	4	5	59	
3	2	10	5	57	
8	5	5	5	56	
3	4	4	4	57	
2	1	1	3	58	
1	1	2	3	58	
0	0	2	2	57	
				10	
			answered question		61
			skipped question		21


Series1
450
400
350
300
250
200
150
100
50
0
Written detailed instructions
Organization charts
Checklists
Matrices
Flow charts
Verbal instructions
Standardized forms/templates
Policy and procedures documents/memos


18
16
14
12
10
8
6
4
2
0
Schedules
Personnel records
Submittal tracking/MCL
Permitting and permit maintenance
Written detailed instructions
Organization charts
Checklists
Matrices
Flow charts
Verbal instructions
Standardized forms/templates
Policy and procedures documents/memos


Schedules
Permitting and permit maintenance
Meeting documents (i.e. agenda, minutes)
Non-SWPPP environmental documentation
Title 36 - labor compliance
Daily reports/diaries
Traffic control reports/logs
Personnel records
Red-lines & as-builts
DBE requirements/tracking
SWPPP related reports/logs
Inspection reports
T&M, force account, or other procurement tracking
Submittal tracking/MCL
Digital photo logs
Source documents
Change order/IWA
Pay estimates
Materials testing reports
40
35
30
25
20
15
10
5
0
Written detailed instructions
Organization charts
Checklists
Matrices
Flow charts
Verbal instructions
Standardized forms/templates
Policy and procedures documents/memos


25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
Schedules
Personnel records
Submittal tracking/MCL
Permitting and permit maintenance
Red-lines & as-builts
Digital photo logs
Meeting documents (i.e. agenda, minutes)
DBE requirements/tracking
Source documents
Non-SWPPP environmental documentation
SWPPP related reports/logs
Change order/IWA
Title 36 - labor compliance
Inspection reports
Pay estimates
Daily reports/diaries
T&M, force account, or other procurement tracking
Materials testing reports
Traffic control reports/logs

What technique you would recommend to illustrate each construction administration process. For example, if you needed to provide instructions on how to document the disposition of a contractor's submittal, would you choose to create a checklist, a flow chart, or detailed written instructions to illustrate the process? On the left is a construction administration process that needs to be documented. On the right is a drop down menu of suggested techniques for illustrating how that process is carried out. Choose from the drop down menu a technique you would choose to illustrate the construction administration processes shown on the left.

	Method of instruction/illustration											
Answer Options	Written detailed instructions	Organization charts	Checklists	Matrices	Flow charts	Verbal instructions	Standardized forms/templates	Policy and procedures documents/memos	Standard Deviation		Median	Response Count
Schedules	9	3	8	2	13	3	13	2	4.7	21.1%	5.5	53
Personnel records	11	5	15	0	1	1	8	12	5.7	17.5%	6.5	53
Submittal tracking/MCL	7	3	16	2	3	2	15	9	5.7	17.4%	5.0	57
Permitting and permit maintenance	12	2	12	1	1	2	13	12	5.8	17.3%	7.0	55
Red-lines & as-builts	16	2	8	0	1	5	9	13	5.8	17.2%	6.5	54
Digital photo logs	15	2	7	0	0	16	9	5	6.3	15.9%	6.0	54
Meeting documents (i.e. agenda, minutes)	18	0	8	0	0	8	12	7	6.5	15.4%	7.5	53
DBE requirements/tracking	9	2	15	0	1	2	17	7	6.6	15.2%	4.5	53
Source documents	16	2	9	1	1	3	18	8	6.8	14.8%	5.5	58
Non-SWPPP environmental documentation	20	0	12	1	1	6	9	5	6.8	14.7%	5.5	54
SWPPP related reports/logs	15	0	8	2	3	0	24	5	8.4	11.9%	4.0	57
Change order/IWA	16	1	5	0	3	1	25	5	8.9	11.3%	4.0	56
Title 36 - labor compliance	8	0	11	0	0	2	27	6	9.2	10.9%	4.0	54
Inspection reports	10	1	7	0	0	7	29	3	9.6	10.4%	5.0	57
Pay estimates	13	1	4	0	3	1	29	5	9.8	10.2%	3.5	56
Daily reports/diaries	13	0	3	0	0	5	30	6	10.2	9.8%	4.0	57
T&M, force account, or other procurement	9	2	8	0	1	3	33	2	10.9	9.2%	2.5	58
Materials testing reports	8	1	6	0	2	1	35	4	11.6	8.6%	3.0	57
Traffic control reports/logs	6	0	10	0	1	2	35	0	12.0	8.4%	1.5	54
	231	27	172	9	35	70	390	205				
								Question Totals				Question Totals
							Comments:	7				7
							answered question	*59*				59
							skipped question	*23*				23

APPENDIX D. INTERVIEW QUESTIONS

APPENDIX D. INTERVIEW QUESTIONS

Capstone Project to Produce a Procedures Manual for Documenting Construction Administration

Interview Questions

The following interview questions are design to help identify procedures and protocols currently being use to complete documentation of construction administration (CA) activities. The aim is to identify what practices are working well and which ones could use improvements.

The results of the responses here will be used, along with other research outcomes, to produce a procedures manual that describes and illustrates best practices for documenting CA.

1. Where do you find well-defined procedures and protocols to follow for documenting your construction administration activities?

2. Do you ever have difficulty finding instructions, references, or the forms you need to complete documentation of the construction administration that you do?

3. What are the most challenging aspects of construction administration?

4. What is the most challenging aspect of documenting construction administration?

5. What documentation procedures are the most efficient or what works the best?

6. Do you believe the documentation of construction administration that you do protects the best interests of your client?

7. Do the project schedules you use include documentation tasks or milestone?

8. Which documentation tasks would you include in your projects' schedules?

9. How does your CA team maintain a project schedule on your jobs?

10. What tools and techniques are the most helpful for the following:

- Submittal tracking?
- Materials testing?
- Daily reports?
- Pay items?
- SWPPP?

11. Please rate the degree of difficulty or effort required for the following documentation efforts, 1 being the least effort or lowest degree of difficulty and 9 being the greatest difficulty of highest degree of effort required.

	1 = Low effort								9 = High Effort
Submittal tracking	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
Materials testing	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
Daily reports	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
Pay items	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
Inspections	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
SWPPP	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
Digital photos	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
Permitting and permit maintenance	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
Other (please name)	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
Other (please name)	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
Other (please name)	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○

12. What digital resources and/or internet protocols listed here do you use most frequently? (please rank order any of these or list others you think of)

	1 = Not used								9 = Used frequently
Spreadsheets (Excel)	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
PM Software (Project/Primavera)	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
Database (Access)	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
On line calculators	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
Google Earth	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
Skype	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
On-line Databases	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
Photo Viewer Software	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
Photoshop	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
GIS	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
Scanner	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
PDF Reader	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
Adobe Acrobat to produce PDF files	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
FTP file transfer	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
Other (please name)	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
Other (please name)	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○

13. What document requirements are the most time consuming?

14. What documentation requirements are the easiest to complete?

15. Do you ever find construction administration documents missing on a project you've worked on?

16. What do you do if and when you find that construction administration documents are missing or have not been produced?

17. Describe the process (i.e. the steps) you go through in order to email a multipage document while working in a field office?

18. What are some significant differences between Documentation for Airport and roadway construction projects?

Specific to inspection/assessment staff

19. What specific documentation efforts typically contain more errors?

20. What are some other documentation shortcomings you find in QA/concurrent review?

21. How could documentation efforts by construction administrators make your job easier?

22. What tools or techniques could improve the accuracy and correctness of CA documentation?

23. What do you look for first when reviewing CA documents?

24. What are some significant differences between Documentation for Airport and roadway construction projects?

25. What do you do if and when you find that construction administration documents are missing or have not been produced?

Documenting Construction Administration

"We need well-defined documentation protocols for staff working on State of Alaska Department of Transportation & Public Facilities (AKDOT) construction projects."

~

AKDOT Consulting Project Manager

Documenting Construction Administration

"We're not getting the information we need from the field offices ."

~

AKDOT Consulting Project Manager

Documenting Construction Administration

"Project closeout is taking too long. We have trouble finding the information we need for closing projects."

~

AKDOT Consulting Project Manager

Project Opportunity

- ✓ Improve documentation **quality**
- ✓ Improve project **communications**
- ✓ Improve project **closeout**

Create a manual for documenting Construction Administration

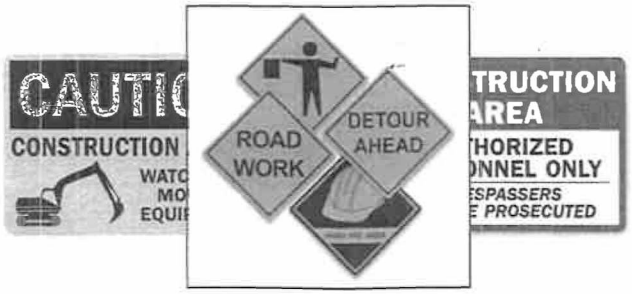
Construction Administration

Refers to the responsibility of relating all construction project functions between the parties to a contract...

~

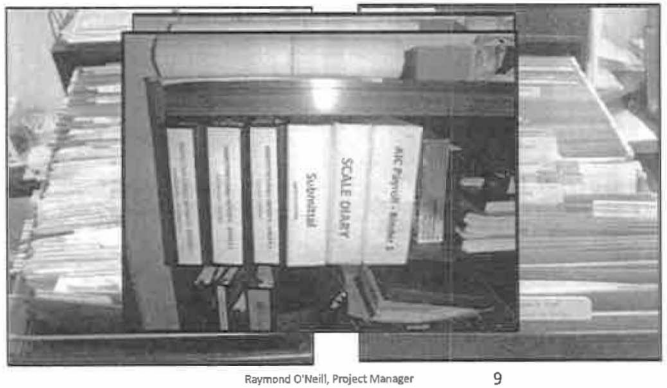
Fisk & Reynolds, 2006

Construction Administration



Construction Administration

Documenting Construction Administration



Can Feel Like

Project Opportunity

- Improve documentation **quality**
- Improve project **communications**
- Improve project **closeout**

Recommend updates for the AKDOT Construction Project Documentation Manual

Project Approach

- Find out what's working
- Find out what's not working
- Provide recommendations for updates to procedures.

Research Approach

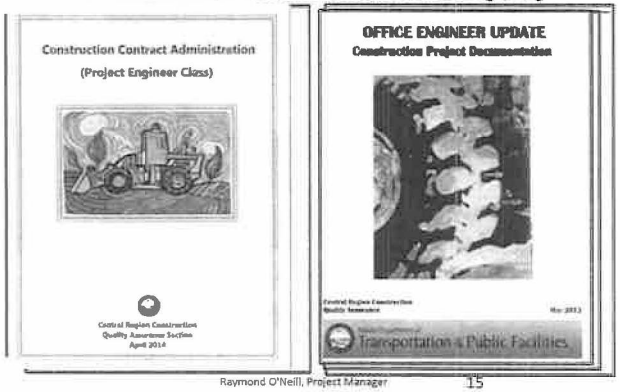
- Literature Review
- Interviews
- Survey

Research

Literature review

- AKDOT Manuals and Policies
- Funding Guidance
- General CA & Quality Literature

Documenting AKDOT Construction Administration (CA)



Research

Interviews

- Formal and informal interviews
- Comments from survey

Research

Interview Outcomes

- Technicians need to be aware of costs
- Assessments with lost or missing source documents

Research

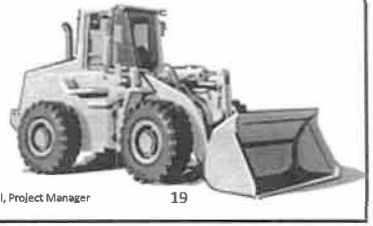
Interview Outcomes

- Photographs in daily reports that illustrate project progress
- CA documentation in the off-season

Research

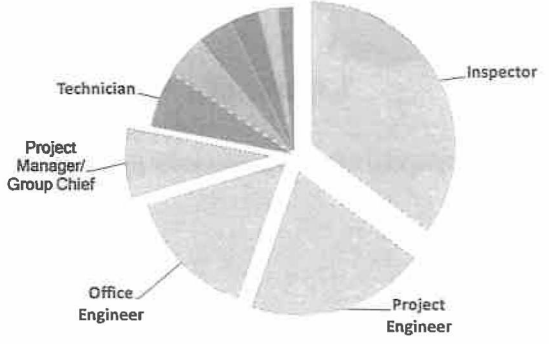
Survey

- 11 Multipart Questions
- 285 Requests Sent via Email
- 29% Response Rate



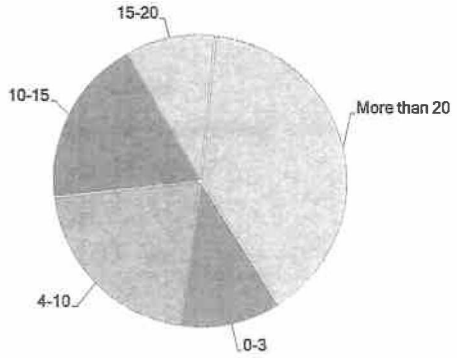
Sample

What is your role?



Sample

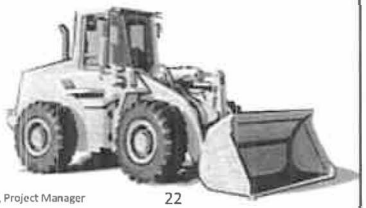
How many construction projects or construction seasons have you worked on with AKDOT?



Research

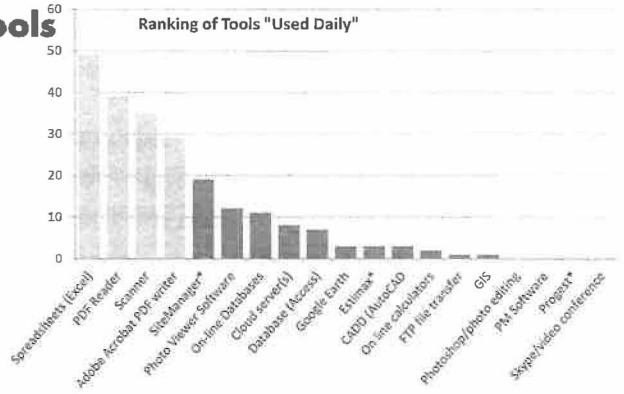
Survey

- Consider 20 documenting tools/techniques
  - Frequency of use
- Pareto analysis ("80-20 Rule")



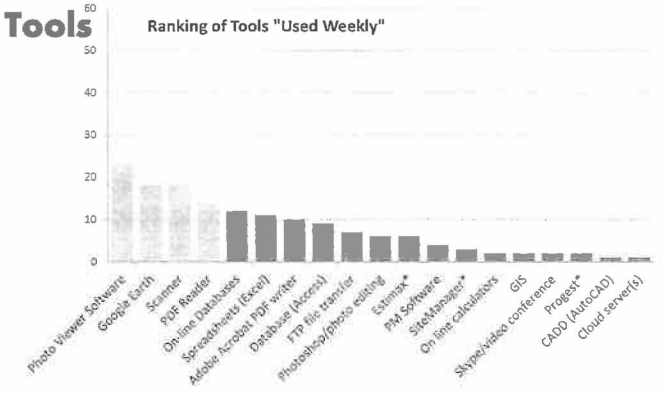
Tools

Ranking of Tools "Used Daily"



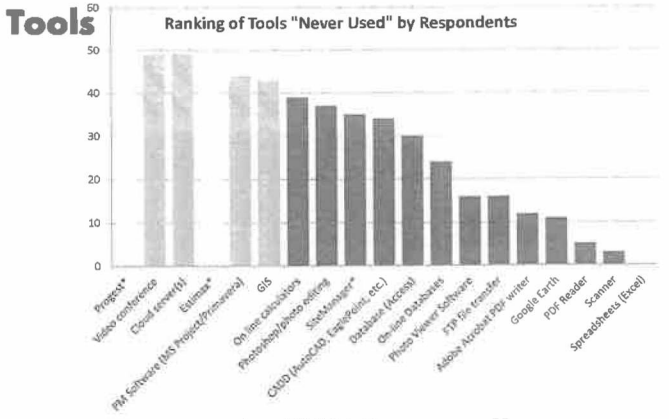
Tools

Ranking of Tools "Used Weekly"



Recommendations
For the AKDOT Construction Project Documentation Manual

Tools



Recommendations
For the AKDOT Construction Project Documentation Manual

Tools used daily:
- Spreadsheets
- PDF reader
- Scanner
- PDF writer

Tools used Weekly:
- Photo viewer software
- Google Earth
- Scanner
- PDF reader

Tools never used:
- Video conferencing
- Cloud server
- Project management software
- Geographic information system (GIS)

Recommendations
For the AKDOT Construction Project Documentation Manual

Tools used daily:
- Spreadsheets
- PDF reader
- Scanner
- PDF writer

Tools used Weekly:
- Photo viewer software
- Google Earth
- Scanner
- PDF reader

Recommend including procedures for digitizing CA documentation

Recommendations
For the AKDOT Construction Project Documentation Manual

Tools used daily:
- Spreadsheets
- PDF reader
- Scanner
- PDF writer

Tools used Weekly:
- Photo viewer software
- Google Earth
- Scanner
- PDF reader

Tools never used:
- Video conferencing
- Cloud server
- Project management software
- Geographic information system (GIS)

Tools used Weekly:

- Photo viewer software
- Google Earth
- Scanner
- PDF reader

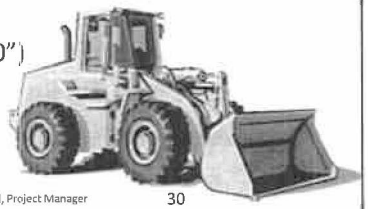
Tools never used:

- Video conferencing
- Cloud server
- Project Management software
- Geographic information system (GIS)

Research

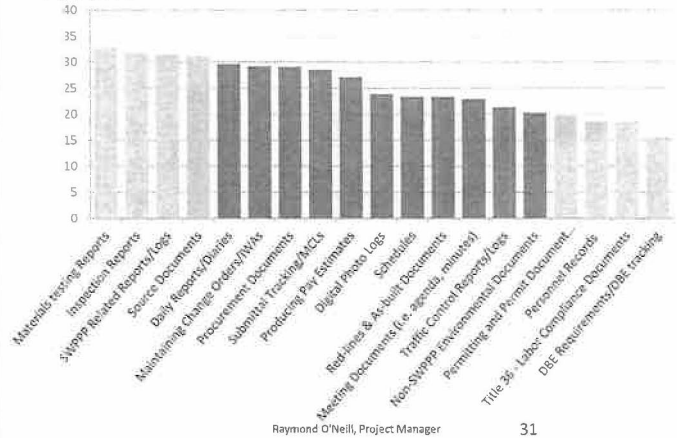
Survey

- Consider 19 documenting tasks
  - Effort required
  - Impact on project closeout
  - Included in a schedule
- Pareto analysis ("80-20")



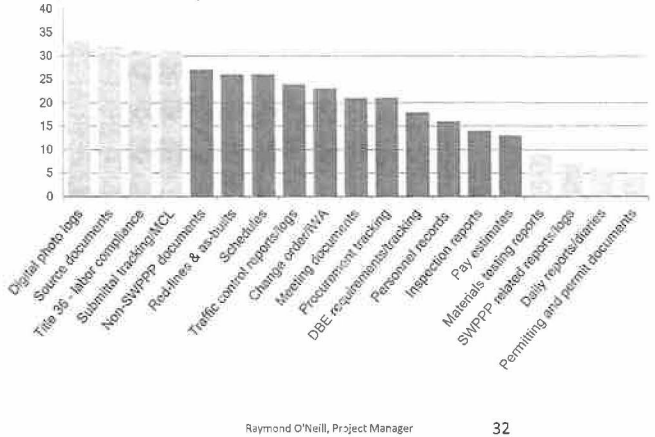
Tasks

Relative Level of Effort

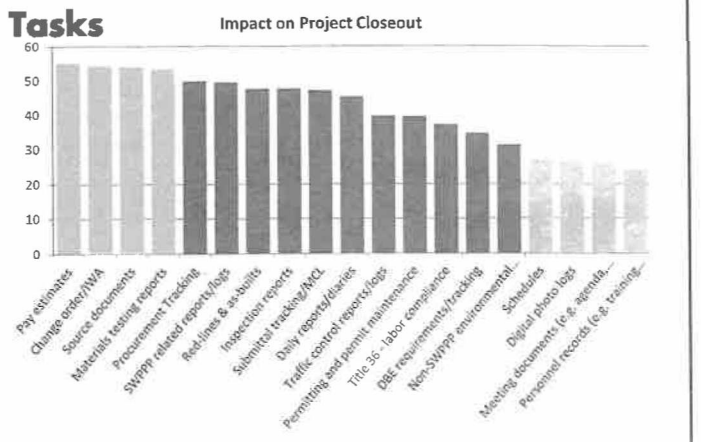


Tasks

Expected to be included on a schedule



Recommendations
For the AKDOT Construction Project Documentation Manual



Recommendations
For the AKDOT Construction Project Documentation Manual

Most effort required

Materials testing reports	(quality)
Inspection reports	(communication)
SWPPP related reports/logs	(communication)
Producing source documents	(quality)

Least effort required

DBE requirements/DBE tracking	(closing)
Labor Compliance	(closing)
Personnel records	(closing)
Permits and permit maintenance	(closing)

Recommendations
For the AKDOT Construction Project Documentation Manual

Most impact at project closing

Pay estimates	(quality)
Change orders/IWA	(communication)
Source documents	(quality)
Materials testing reports	(quality)

Least impact at project closing

Personnel records	(closing)
Meeting documents	(communication)
Digital photo logs	(communication)
Schedules	(communication)

Recommendations
For the AKDOT Construction Project Documentation Manual

Most likely to be on a schedule

Digital Photo logs	(communication)
Source Documents	(quality)
Labor Compliance	(closing)
Submittal tracking/MCL	(quality)

Least likely to be on a schedule

Permits and permit maintenance	(closing)
Daily Reports	(communication)
SWPPP related reports/logs	(communication)
Materials testing reports	(quality)

Recommendations

Quality:

- Digitize documents/PDF document formats
- Introduce GIS

Communication:

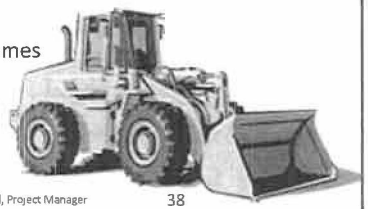
- Digitize documents/electronic records management
- Meeting documents, digital photos logs, and schedules

Closeout:

- Revise the "post-season documentation" approach

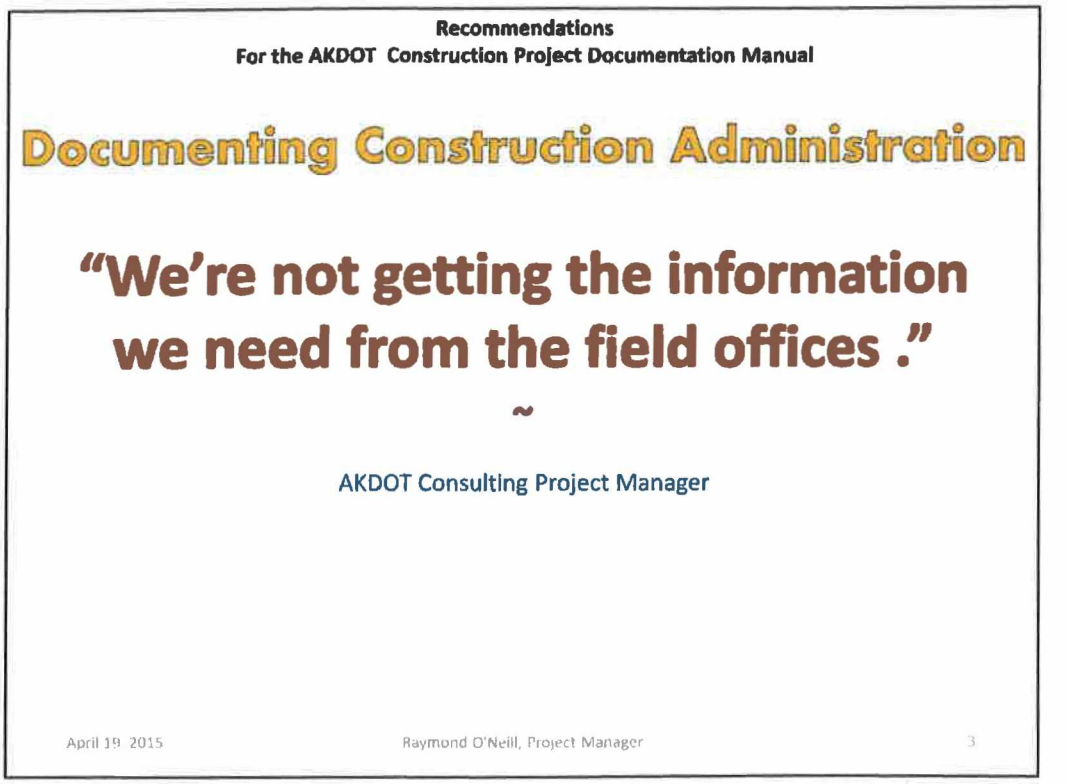
Additional Recommendations

- Consolidation and cross references
- Use specifications
- Structured Data
- Further analysis of this survey data
  - Role specific analysis
  - Experience related outcomes



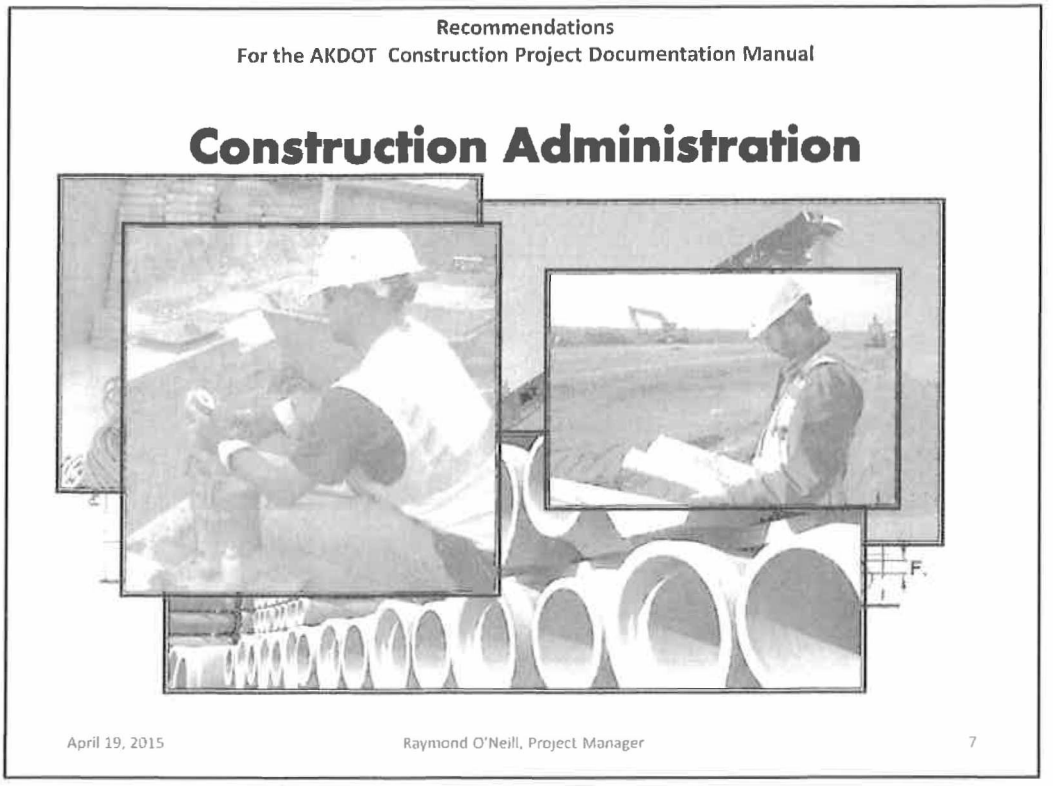
Questions

This project is about quality in construction. Recommendations have been developed from improving how construction administration is documented by and for the Alaska Department of transportation.



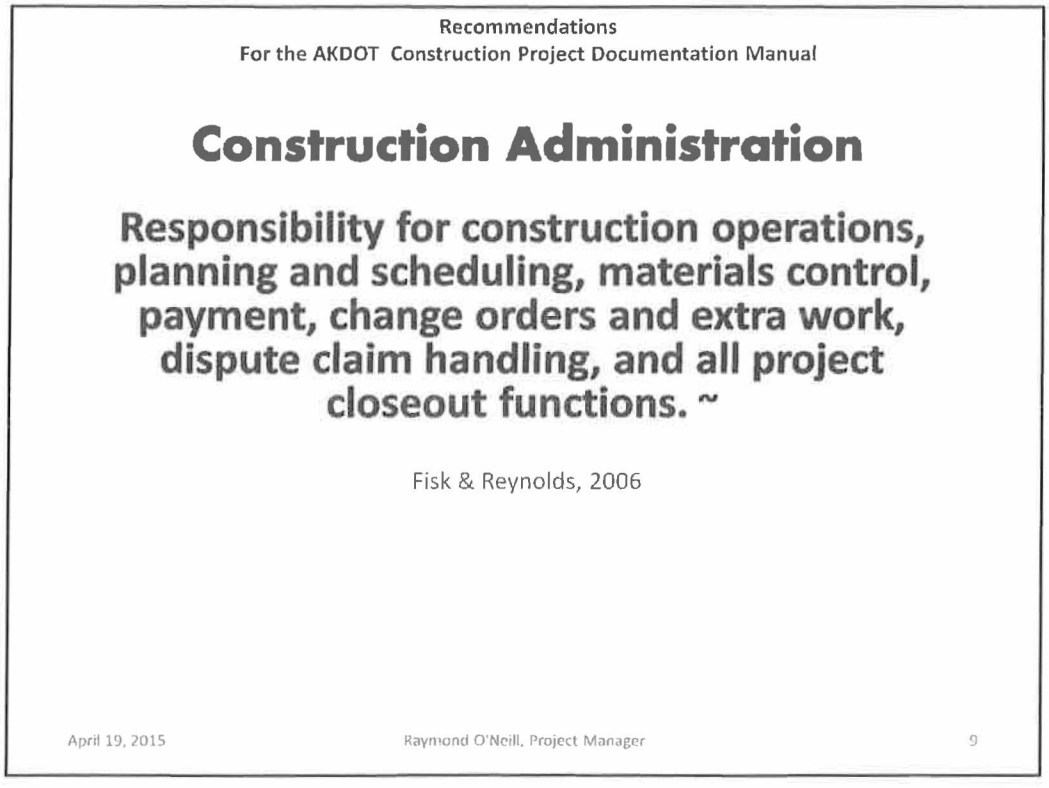
"The responsibility of relating all project-related functions between parties to a [construction] contract"

CA Quality
Project Communications
Project Closeout



Technical information

High volume procurement, materials and equipment all requiring quality control, inspection, certification, testing , etc.



These are all aspects of construction administration.

Recommendations
For the AKDOT Construction Project Documentation Manual

Can Feel Like

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Project managers complain about not getting current status information from the field.
Quality assurance reviews need to improve.
Project close out is time consuming due to a lack of complete documentation.

Project Approach

- Find out what's working
- Find out what's not working
- Provide recommendations for updates to procedures.

Research

Literature review

- AKDOT Manuals and Policies
- Funding Guidance
- General CA & Quality Literature

Literature review became focused on AKDOT Material. The project was initially going to produce a manual, but early on it became apparent that AKDOT has manuals that are periodically updated.

Research

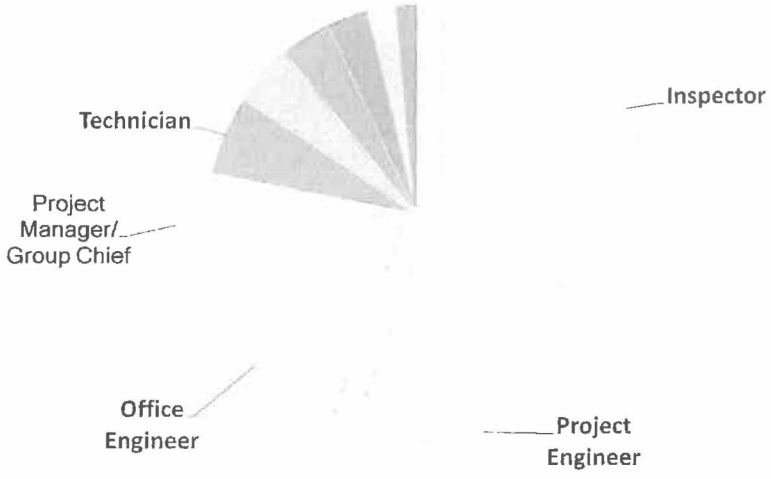
Interviews

- Formal & Informal Interviews
- Comments

Literature review became focused on AKDOT Material. The project was initially going to produce a manual, but early on it became apparent that

What is your role?

Sample



Recommendations
For the AKDOT Construction Project Documentation Manual

Research

Survey

- Consider 20 documenting tools/techniques
  - Frequency of use
- Pareto analysis ("80-20 Rule")

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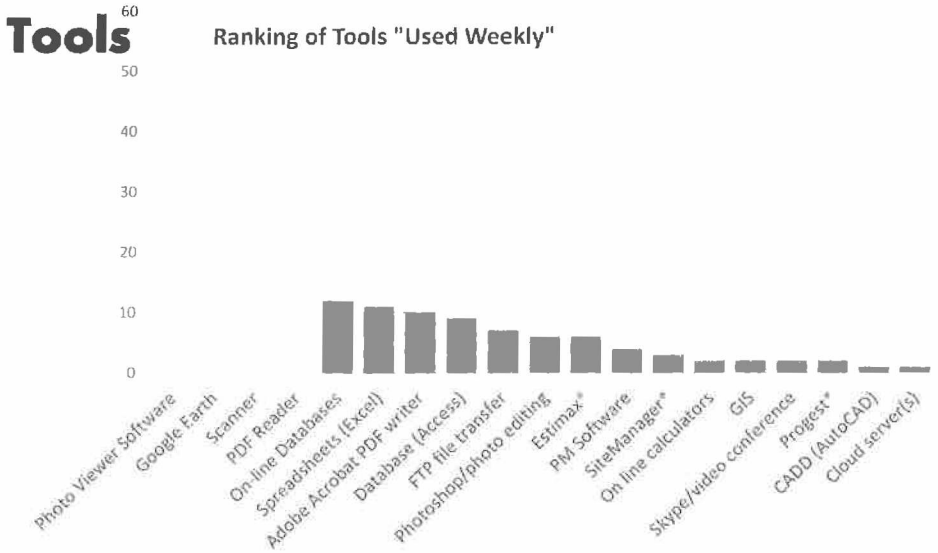
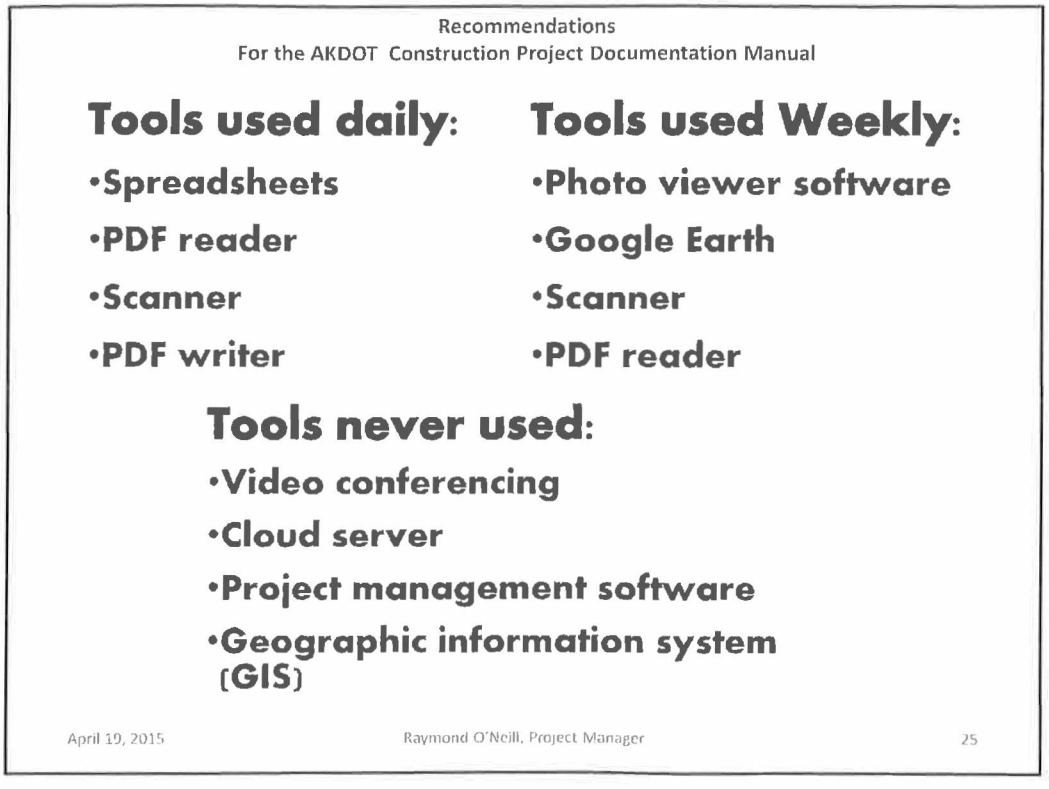
My survey went on to consider documentation tools and techniques used in CA, and with what frequency. This is part of my approach to identify what works or what is working.

I've applied a qualitative analysis of the data that was returned to inform my recommendations. In an attempt to parse the most valuable data from the survey responses I used a Pareto analysis, also known as the "80-20 rule". My approach is to identify the 20% most frequently used tools and consider that improvements involving these 20% might approach 80% of the potential benefit possible in developing improvements based on what tools are currently being used.

Recommendations
For the AKDOT Construction Project Documentation Manual

Tools





I tallied the outcomes form survey questions about CA tools. These are grouped as shown: tools used frequently (dialy, weekly) and tools identified as never used.

Recommendations
For the AKDOT Construction Project Documentation Manual

Tools used daily:

- Spreadsheets
- PDF reader
- Scanner
- PDF writer

Tools used Weekly:

- Photo viewer software
- Google Earth
- Scanner
- PDF reader

Tools never used:

- Video conferencing
- Cloud server
- Project management software
- Geographic information system (GIS)

Research

Survey

- Consider 19 documenting tasks
  - Effort required
  - Impact on project closeout
  - Included in a schedule
- Pareto analysis ("80-20")

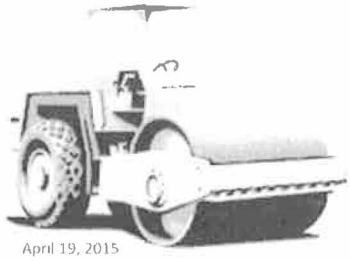
Recommendations
For the AKDOT Construction Project Documentation Manual

Most Effort Required

Materials testing reports	(quality)
Inspection reports	(communication)
SWPPP related reports/logs	(communication)
Producing source documents	(quality)

Least Effort Required

DBE requirements/DBE tracking	(closing)
Labor Compliance	(closing)
Personnel records	(closing)
Permits and permit maintenance	(closing)



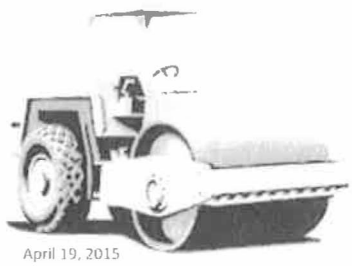
Recommendations
For the AKDOT Construction Project Documentation Manual

Most likely to be on a schedule

Digital Photo logs	(communication)
Source Documents	(quality)
Labor Compliance	(closing)
Submittal tracking/MCL	(quality)

Least likely to be on a schedule

Permits and permit maintenance	(closing)
Daily Reports	(communication)
SWPPP related reports/logs	(communication)
Materials testing reports	(quality)



Summary of Lessons Learned

Prepared for UAA Master of Science in Project Management (MSPM)

PM686B Spring 2015 – Executing Controlling and Closing

Use the project management plan

The project Management plan has been a great tool for helping me get back on track. It has been helpful to go back to those subsidiary plans and be reminded and refocused on the project process. I learned that when tasks began to seem too complicated or complex it was helpful to go back to the WBS or the project charter where the project objectives and strategy are clearly illustrated.

Time management

Almost every task required more time than estimated, and additional time requirements added up to a lot of time very quickly! Working more closely with the scheduling tool would have made this more apparent sooner in the process. Recording time daily, or at least weekly, would have given me a better perspective on the float I was losing and would need later. Using only durations for many of my tasks was not sufficient for me to track and monitor progress.

Developing criteria for measuring effectiveness of management processes

I need to improve my ability to identify criteria for measuring the effectiveness of applied tools for managing projects. I struggled both semesters to identify criteria for measuring successful outcomes and the application of the PMBOK knowledge areas. This will remain an area of interest for developing my management skills.

Design surveys carefully

My survey was structured with specific objectives in mind, but the data that was returned required more analysis than I was prepared for. A more simplistic survey would have been much easier to work with. My survey analysis was difficult to align with the specific areas of concern because the survey itself was overly complex, with multi-part rating questions.

I learned a lot about surveying from the recommended text for the course and from my experience working with my results. However, I took on too much for my first attempted survey by planning an analysis I did not have time or expertise to complete.

My choice to present a qualitative analysis was effective but the value of the survey could have been much greater.

Tracking changes

Tracking changes is an important and helpful aspect of scope management and project control. Breaking down the impacts that a project change will have on deliverables, schedule and stakeholders helps determine if there needs to be a scope change and how the scope needs to be adjusted.

Risk register

Listing the possibilities of negative impacts in the risk register helped prepare me for the loss of project sponsorship. While I realized it was a strong possibility, by writing about it I identified ways to mitigate the impact on project processes.

Trust the process

Often I would become discouraged with what looked like too much work, or I couldn't see a clear path to the final product. What helps in these cases is to commit to making daily progress on at least one aspect or update to the project. This is when I need to return to the project plan and realize that I have already charted a way forward, with a structure of tasks, and to progress on a piece rather than trying to accomplish the whole project at a single approach.

Communicate more and sooner with advisors

Every time I sought council with an advisor I was encouraged and left the discussion with a clearer sense of progress on my project. This would often leave me wondering why I didn't seek council sooner.

I've learned that I have to be very proactive in communicating with stakeholders. This not only exposes me to better ideas and perspectives but also requires that I be prepared. Several times in this process I would be preparing questions or discussions to have with an advisor and find that I was coming up with the direction I needed by trying to formulate my questions.

For future projects I'm going to be specific in my communications planning. I've learned that regular communications with project stakeholders may not come naturally but will require proactive commitment.

Don't become discouraged - perfection is not a reasonable objective

Loosing sponsorship and finding that I was not able to keep stakeholders interested in my work was disappointing, but I somehow took it personal. I let myself believe that the loss of sponsor interest meant that the project was not worth doing and therefore, since I was continuing with it anyway, I was not working on a worthwhile project. This was not a realistic assessment and I was the only one with this outlook on the project. Sponsors had other priorities and my advisors continue to be encouraging, but I was telling myself the project was not worth doing and this made it difficult to remain fully committed.

It was good that I planned the project so that it can be executed with or without the project sponsorship.

MS Project scheduling tool

I thought I had a good grasp of MS Project, but once I tried to employ some of the more advanced functions I began having trouble. Then I began tweaking the project tasks and durations in order to produce Gantt charts to illustrate current project status for milestones. This turned out to be a slippery slope and resulted in a schedule file that I was not entirely able to recover.

By going back to the beginning with MS Project, and with specific instructions from my primary advisor, I was able to learn a great deal about how to use this tool.

Be careful with document versioning and create an archive

I spent allot of extra time recalling versions and updates from previous work. Also, backup material needs to be properly managed for use with sync applications that are able to overwrite earlier documents.

Thumb drives are very convenient but be careful not to use multiple drives which is a good way to lose track of what documents are the most current.

Keep it simple

Do not take on new or unfamiliar tools unless absolutely necessary, regardless of your interest or how much you are encouraged to use them. There will be plenty of documenting and tracking to keep busy without learning new tools. There will be plenty of opportunities for demonstrating PM mastery using basic tools and techniques.

Don't overthink or over-engineer processes. If processes are not as simple and as straight forward as possible it is likely that additional effort will be required to communicate them. This is true especially without additional human resources. There will be better opportunity to be creative and innovative when working with teams that are communicating effectively and share your goals.

Take the directions you are given and try to simplify as much as possible. The syllabus contains allot of direction, and additional direction and suggestions will be provided in lectures and by members of your advisor team. Clarify as soon as possible with an aim to simplify.

Capstone PM Knowledge Area Focus and Application

Final Update April 24, 2015

Selection of Knowledge Areas

I selected the following PMBOK® Knowledge Areas as a focus of application during the execution, control and closing phases of this capstone project:

- Scope Management
- Schedule Management
- Risk Management

The application of these topics has significantly enhanced project outcomes and I have gained greater skill and understanding of the tools used in applying these knowledge areas.

The project management plan contains subsidiary plans to address each of these knowledge areas.

Scope Management

Several scope changes have been required throughout this project and a change control process has been used. Successful scope management is being demonstrated as changes are recorded and updates are made to the project documents, including updates to WBS, requirements matrix, risk register, stakeholder analysis, etc.

The success of this process is measured by showing that identified requirements are either aligned with project objectives, or they are not requirements that have application to the project deliverable.

Demonstrating mastery of scope management was done by documenting changes and communicating those changes to stakeholders (advisor committee). Using a change control form that I modeled after the Project Management Communications Toolkit illustration (Pritchard 2004), I identified the impacts of proposed changes on project documents, indicated the level of impact on project schedule, and assigned tasks for updates and changes as necessary. The change control form was circulated among project stakeholders providing the opportunity for input and ensuring coordination among stakeholders.

Updates to the project charter were informed by the change management control process and further demonstrate PM mastery.

The WBS tool was also used throughout the project phases to demonstrate mastery of project management. By maintaining side-by-side breakdowns for the primary deliverable and the project management tasks, this project illustrated the separate effort necessary for managing a project.

Schedule Management

The project schedule is intended to be used to determine an "effort performance index" according to earned value method (EVM) analysis; specifically this will be reported using the cost performance index (CPI) calculation provided in Microsoft Project.

The CPI has not been effective this semester due to changes made to schedule data. Attempts at varying resource percentages, illustrating breaks in the workflow, applying tools built into the software without understanding their effects on programed calculations, attempts at multiple baselines and re-base lining, and the limited time available to learn and apply the software has been a costly endeavor.

I've rebuilt portions of the MS Project Schedule to produce realistic data from the software and to provide a Gantt chart as the required deliverable. With coaching from my primary advisor I've discovered how to avoid pitfalls in building the MS Project tool, and how to establish settings that will provide the best performance

Risk Management

A risk register has been initiated and a simple risk score is assigned to each identified risk. The score is the product of a probability of occurrence estimate and an estimate of impact to the project based on a scale of 0 to 1, each factor is reported as a percentage and the risk score generated be reported as a whole number between 1 and 100.

The conditional formatting function of Microsoft Excel provides a color scale that illustrates the relative risk score among the risks identified, so that the highest risk score is obvious to the risk register user who can then prioritize mitigation planning accordingly.

The risk register will include descriptions of planned mitigation and mitigation outcomes. The occurrences of identified risks will be recorded along with the mitigation efforts applied and resulting outcomes. Illustrating in the risk register that planned mitigation applied in the event of occurrence results in the expected outcomes will demonstrate successful application of risk management.

Comparisons of planned and actual risk mitigation and outcome will be measured to show successful application of the risk management. The contrast between planned and actual risk mitigation and outcomes will be a source of lessons learned and documented as such.

Updated Capstone Project Management Plan

University of Alaska Anchorage
PM 686B, Spring 2015

Recommendations for Updating the AKDOT Construction Project Documentation Procedures Manual

Raymond O'Neill, MSPM Student
Roger Hull, Advisor

Project Management Plan Revisions

Version Number	Revision Date	Revision Notes	Reviewed By		
#1	March 15, 2014	First Draft Submitted w/ PPM#3 on March 19, 2014	Roger Hull		
#2	April, 2014	Final Project Management Plan submitted w/ PPM#4 on April 15, 2014			
#3	May 4, 2014	Final submittal for PM686A			
#4	October 10, 2014	Updated Project Title, Project Goals and Objectives, Scope of Work, and deliverables. Update Stakeholder Identification & Analysis, Change Management Plan, and Project Schedule			
#5	February 12, 2015	PM686B – Spring 2015 PM Plan Update. Schedule update. PPM#2			
#6	April 10, 2015	Final Update			

TABLE OF CONTENTS

1 PROJECT GOALS AND OBJECTIVES

The two goals of this project are; 1) deliver recommendations for updating the most current version of the *Construction Project Documentation* procedures manual that defines and illustrates documentation processes and protocols for construction administration of AKDOT roadway construction projects, and 2) produce a successful UAA Capstone Project to meet the requirements of the Master of Science in Project Management (MSPM) curriculum.

1.1 PROJECT DELIVERABLE OBJECTIVES

To meet the goal of producing a procedures manual as described in the previous section the following objectives will be met:

- Review AKDOT construction manuals in order to gain a working knowledge of the documentation requirements for construction administration (CA).
- Survey AKDOT CA professionals to:
  - ✓ Determine current tools and techniques for documenting CA
  - ✓ Identify gaps in documentation quality
  - ✓ Solicit recommendations for CA documentation
- Interview AKDOT construction professionals to
  - ✓ Identify best practices in documenting CA
  - ✓ Ensure AKDOT requirements will be met
- Produce recommendations for updating the most current version of the *Construction Project Documentation* procedures manual for CA documentation. This manual defines documentation protocols and illustrates documentation procedures
- Propose improvements to protocols for documenting AKDOT CA.

1.2 CAPSTONE PROJECT OBJECTIVES

To meet the goal of successful completion of a UAA Capstone Project for the requirements of the Master of Science in Project Management (MSPM) curriculum the following objectives will be met:

- Meet the requirements of PM686A & B curriculum as established in the course syllabi
- Demonstrate project management mastery
- Apply focused demonstration of mastery of the following Project Management Knowledge areas:

✓ Schedule Management

✓ Project Scope Management

✓ Project Communication Management

✓ Project Risk Management

- Contribute to the Project Management Body of Knowledge

2 SCOPE OF WORK

The scope of work consists of the project scope and the product scope. The project scope is influenced primarily by the academic requirement to demonstrate project management skills, while the product scope will deliver recommendations for updating the most current version of the AKDOT procedures manual for *Documenting Construction Administration*. The recommendations will improve definitions of documentation requirements, processes and protocols.

R&M Consultants Inc. (R&M), an Anchorage-based multi-disciplinary civil engineering firm, has a construction administration (CA) department that provides CA services to the Alaska Department of Transportation & Public Facilities (AKDOT). As a tool to improve quality assurance, communications, and project integration R&M would like to have documentation processes well-defined for the construction administration engineers, inspectors and other project staff.

This project will identify requirements for CA documentation, primarily from the AKDOT's construction project manuals and quality standards for documenting CA.

In addition to a literature review, project research will include Surveys of CA professionals with AKDOT and other CA professionals in Alaska to determine best practices and to identify gaps in current documentation practices.

This project will also demonstrate project management mastery and will meet the academic requirements of the UAA PM686 curriculum. This project will represent a contribution to the project management body of knowledge.

2.1 ENTERPRISE ENVIRONMENTAL FACTORS

The product deliverable was originally developed for use by R&M project teams that operate on a seasonal basis in geographically dispersed project management office with a project manager overseeing several projects from an Anchorage home office. The R&M construction administration department has a single client, AKDOT, and closely mimics the culture and project administration structure.

R&M and AKDOT staffs are expected to be an important source of requirements data necessary to develop the project deliverable.

The organizational culture of AKDOT and its consulting partners is traditional, holding to administrative processes that have been in place for many years. The organization is highly resistant to change or innovation and personnel administration favors employee performance that closely follows long standing patterns.

2.2 ORGANIZATIONAL PROCESS ASSETS

The project manager for this project is the sole staff responsible for planning and completing the scope of work.

The product scope has been derived to meet a business need within R&M, a composite organization that operates with combined characteristics of a projectized organization and a weak matrix organization. Staff is generally assigned to be collocated on projects full-time as needed to expedite project activities and communications. Most of the organization's resources are assigned to project work and the project manager's role on any given project is part-time but maintains significant authority. The organization historically doesn't value project management processes, presenting low project management maturity. Projects are led in an ad hoc manner by staff-level construction administration professionals with significant institutional knowledge.

Academic project requirements are well defined in the program syllabus and an academic committee will review and advise on progress while assigning a scored evaluation at project progress milestones.

3 STAKEHOLDER IDENTIFICATION AND ANALYSIS

Stakeholders have been identified in initial planning for this project. An analysis of key stakeholders describes the level of interest and influence, and suggests approach methods for project communications. A stakeholder identification and analysis report is provided in Appendix D.

Stakeholder management will require updates to the stakeholder registry and continuous stakeholder analysis. Section 4.8 of the project management plan contains the stakeholder management plan for this project.

3.1 STAKEHOLDER REGISTER

The project's initial stakeholders register shows primary stakeholders grouped into three categories: Decision Makers, Influencers, and Observers. Table 1 shows key stakeholders and other stakeholders. A stakeholder identification and analysis report is provided in Appendix D.

Table 1 Key Stakeholders

3.2 STAKEHOLDER ANALYSIS

An initial analysis of each identified stakeholder has been updated and can be found in the Stakeholder Register (Appendix D). Stakeholders were evaluated on a power/interest grid to visualize the relative level of stakeholder management expected for each stakeholder.
Project sponsorship has been sporadic and shortly into project execution the project was no longer being sponsored or supported by R&M Inc.

Stakeholder management will be ongoing and include additional stakeholder analysis. A stakeholder management plan is provided in Section 4.9.

4 SUBSIDIARY MANAGEMENT PLANS

The following subsidiary plans provide the basis for monitoring and controlling the project.

The development of these plans is based on evaluation of environmental enterprise factors, organizational process assets, stakeholder analysis, risk assessment, and other factors identified during the project's planning phase.

4.1 SCOPE MANAGEMENT PLAN

The scope of work consists of the project scope and the product scope. The project scope is influenced primarily by the academic requirements and the need to demonstrate project management skills.

The product scope includes research designed to uncover new requirements and criteria for updates to the procedures manual that is the project's primary deliverable. Scope management will ensure that new requirements are documented in the Requirements Matrix, and are integrated into the WBS.

Project requirements that cannot be satisfied by an existing activity described in the WBS will constitute a scope change as described in the Section 4.1.3.

Successful scope management for this project will be demonstrated by consistent use of the WBS to define and configure the work necessary to meet project requirements as they arise. The measure of success in scope management will be the acceptability by stakeholders to approve and support scope changes. This acceptance by stakeholders will be a result of clear communication of necessary changes and integration of scope change forms, requirements matrix, and WBS.

4.1.1 Work Breakdown Structure (WBS)

The WBS and WBS Dictionary are found in Appendix F. The WBS defines and organizes all of the work required to produce the project deliverables, and will be used to manage the project scope. Project requirements are mapped to the WBS in the Requirements Matrix found in Appendix G to ensure the work to meet the requirement has been defined and configured.

New requirements will be generated through research as this project progresses, and they will be documented in relation to the WBS element that describes the work necessary to meet the new requirement. Scope management will include providing any additional work packages to the WBS.

The WBS for this project will be re-assessed to ensure that work is defined for new requirements as they are identified. Survey analysis, along with research of industry practices is expected to uncover additional requirements than those currently described in the requirements matrix. As these requirements develop, scope management will identify an existing WBS element that represents the work needed to meet the new requirement.

4.1.2 Requirements Management Plan

Requirements gathering will be ongoing as this project progresses.

Research for the project includes Surveys of CA professionals with AKDOT, and other CA professionals in Alaska to determine best practices and to identify gaps in current documentation practices.

Researching the existing AKDOT procedures manuals, policies documents, and quality assurance assessments will identify additional requirements.

4.1.3 Change Management Plan

Changes to project scope are expected as a result of new requirements being identified as the project progresses. Change management will be necessary to ensure that the resulting changes are documented and that additional requirements are integrated into the project scope.

Stakeholder review of proposed scope change forms will be sought when new or changed work is determined necessary as the project progresses.

A change management log has been developed. For significant changes impacting project scope, such as those resulting in a change to the WBS, a change request form will be issued. The change log and change control forms can be found in Appendix K.

4.1.3.1 Project Progress Method & Change Control Process

The project will progress through execution of the planned task and updates to the project management plan. Project performance will be monitored using earned value method (EVM); specifically an "effort performance index" will be reported using the cost performance index (CPI) calculation provided in Microsoft Project. A cost equivalent of $1.00/hr for work will be assigned and this index will report as "CPI". Other EVM indices will also be considered. Project performance milestone (PPM) evaluations will also provide a measure of project performance.

At the onset of this phase of the project, when overall CPI values fall below 1.0 or if PPM grading is below 90%, performance will be considered unacceptable. The unacceptable condition will prompt the risk response and change control process shown in the attached diagram.

As shown in Figure 1 the change control process consists primarily of defining the change necessary, analyzing the resulting impact of the change (schedule & scope), assessing the risk associated with the change, seeking stakeholder input, and providing the appropriate updates to the project management plan. If the change control process provides an acceptable outcome the resulting tasks will be executed and the project will continue to progress.

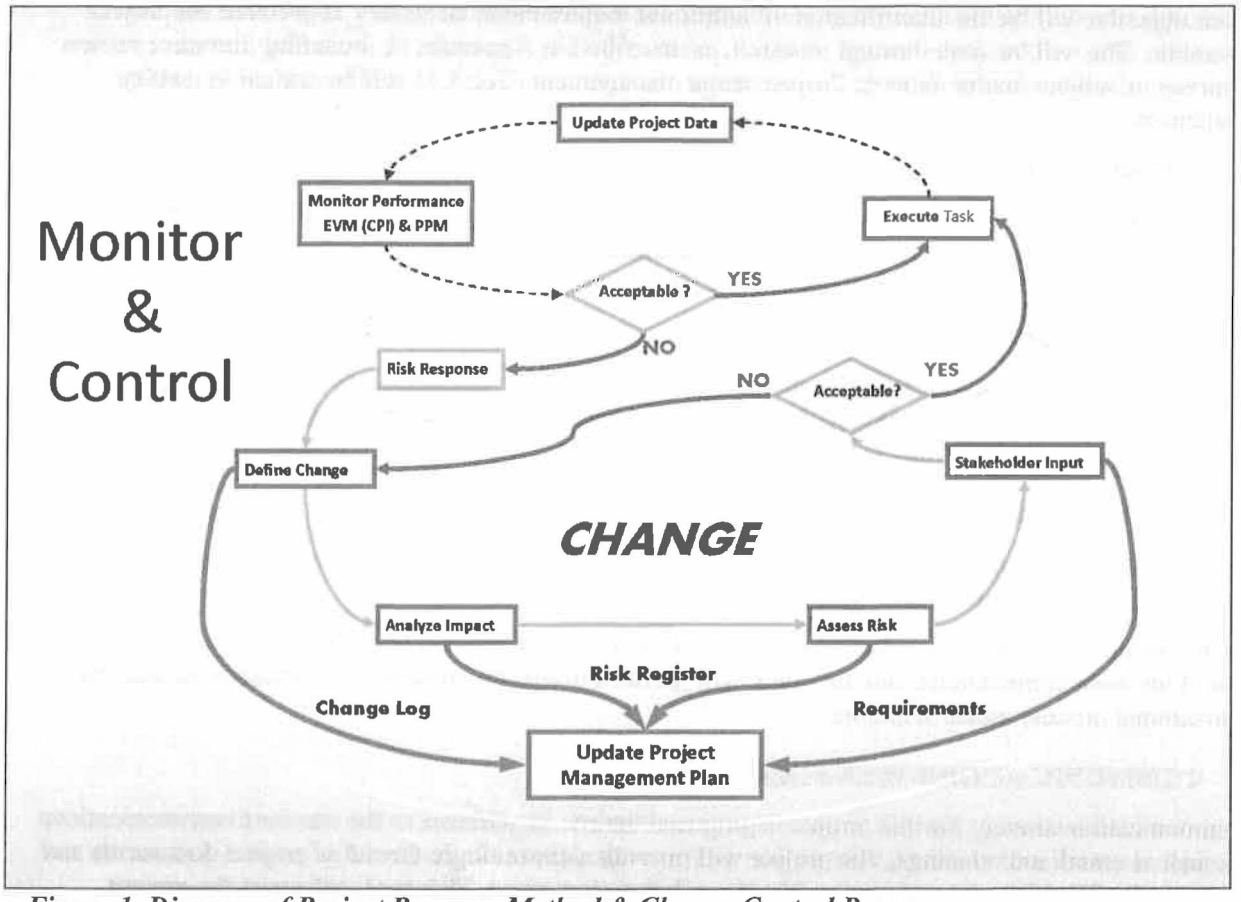


Figure 1. Diagram of Project Progress Method & Change Control Process.

4.2 SCHEDULE MANAGEMENT PLAN

Task durations have been set based on scheduled progress milestones and the academic calendar. Estimated time to complete tasks is required to demonstrate effective schedule maintenance.

A schedule baseline will be set and the project schedule will be managed with regard to the schedule estimates.

Work time estimates have been provided to complete tasks within the time available. Actual work is recorded in the schedule software and performance will be monitored using EVM as described in section 4.1.3.1.

4.3 COST MANAGEMENT PLAN

There is not a realistic cost component to this project, therefore a cost baseline and cost management plan have not been developed.

4.4 QUALITY MANAGEMENT PLAN

Quality management will ensure that project objectives are met and deliverables are acceptable. Requirements documentation and maintenance of the project scope will be the primary criteria for determining project quality management.

Project quality will be managed by implementing quality planning, quality assurance, and quality control as described in the following sections.

4.4.1 Quality Planning

A requirements traceability matrix has been developed and includes acceptability criteria. A critical project objective will be the identification of additional requirements necessary to produce the project deliverable. This will be done through research, as described in Appendix H, including literature review and survey of subject matter experts. Project scope management (Sec.4.1) will be critical to quality management.

4.4.2 Quality Assurance

Updates to project documents, including the requirements traceability matrix and change control forms, will ensure that project objectives are being tracked and met. The progress of project objectives can be determined from project documents in any phase of the project.

4.4.3 Quality Control

Evaluation of project progress and project quality by the academic committee will contribute to project quality control. The PM686 syllabus will also provide progress milestones that will be evaluated and constitute quality control for this project. .

4.5 HUMAN RESOURCES MANAGEMENT PLAN

Human resources management is not being factored into this project management since no additional staff is being utilized beside the project manager.

Human resources management principles have been reviewed for this effort. The project manager is aware of his own competencies and how they will perform given the enterprise environmental and the organizational process assets available.

4.6 COMMUNICATIONS MANAGEMENT PLAN

A communication strategy for this project is proposed below. In addition to the standard communications tools such as email and meetings, this project will provide a chronologic thread of project documents and updates on the Blackboard academic tool in the collaboration space. This tool will assist the project manager not only as a tool to communicate with the advisory committee, but it will also serve as a repository for submitted documents that is outside of the day-to-day editing work space.

An on-line stakeholder management tool, Stakeholder Circle®, will be used for this project. Details can be found in section 4.9 of this project management plan and updated reports from this tool will be maintained in Appendix D.

4.6.1 Strategy

Communications strategies are planned for three different groups of stakeholders: decision makers, influencers, and observers as identified in the stakeholder analysis.

The decision makers in this project should be managed closely among stakeholders. Communication techniques that will be used with project decision makers will be:

- Email inquiries
- Informal face-to-face meetings/discussions
- Reports & project documents delivered via email
- Surveys
- Telephone conversations.

Decision makers are primarily R&M managers who are also the project sponsor. Most interaction will take place via email and casual one-on-one meetings. These stakeholders react favorably to friendliness, signs of group buy-in, and to seeing others respond favorably. The organizational culture is one that discourages individual assertion and these decision makers will wait to see the position of others on any given idea. A strong position taken by any of these stakeholders will be difficult to overcome with reasoning or assertiveness and such strategies should be minimized.

Project influencers will be the largest source of details regarding the requirements associated with the deliverables. Before initiating contact with these stakeholders support will be sought in the way of an email introduction or a phone call from one of the R&M managers to encourage communication and participation. The group of CA professionals that I plan to survey is identified in stakeholder analysis as project influencers.

4.7 RISK MANAGEMENT PLAN

A risk register has been initiated and a simple risk score is assigned to each identified risk. The score is the product of a probability of occurrence estimate and an estimate of impact to the project based on a scale of 0 to 1, each factor is reported as a percentage and the risk score generated be reported as a whole number between 1 and 100.

The conditional formatting function of Microsoft Excel provides a color scale that illustrates the relative risk score among the risks identified, so that the highest risk score is obvious to the risk register user who can then prioritize mitigation planning accordingly.

The risk register will include descriptions of planned mitigation and mitigation outcomes. The occurrences of identified risks will be recorded along with the mitigation efforts applied and resulting outcomes. The risk register will indicate where planned mitigation efforts and results have been applied in the event of the occurrence of identified impacts, thereby demonstrating successful application of risk management principles

Comparisons of planned and actual risk mitigation and outcome will be a source of lessons learned documentation.

4.7.1 Risk Register

The risk register is maintained in Appendix E

4.8 PROCUREMENT MANAGEMENT PLAN

Resources applied to this project are solely my own. Procurement management will not be necessary on this project.

4.9 STAKEHOLDER MANAGEMENT PLAN

This will be the project knowledge area where the most project benefit can be gained. Stakeholder involvement and support is especially valuable within the R&M/AKDOT community. Diligence in bringing a passive and non-assertive tone will require a balance of timing and patience. Formal language should be tempered.

A project has been setup using Stakeholder Circle® software on-line and the software company has provided assurance that they will maintain a license for training purposes through the life of the project; however, since the project sponsorship has been dropped the Stakeholder Circle effort has been abandoned for this project.

Attention to academic advisors must not be overlooked. LuAnn Piccard has established a standing, bi-weekly meeting and a similar arrangement will be requested with Roger Hull and Seong Dae Kim.

4.9.1 Stakeholder Register

The project's initial stakeholders register shows primary stakeholders grouped into three categories: Decision Makers, Influencers, and Observers. A stakeholder identification and analysis report is provided in Appendix D.

The stakeholder register was also used as the basis for compiling product requirements in the requirements matrix (Appendix G).

5 PROJECT SCHEDULE

Currently the project schedule is using duration of WBS elements fitted to the constraints of the academic term. Work estimates through the planning phase have been inaccurate due to frequent and significant changes to the scope leading to the additional work of change management in the planning processes. Duration alone has proven inadequate for tracking work and indicating schedule performance.

An updated estimate of work utilizing a single resource, the project manager, will be scheduled for the remaining project duration and established as baseline for the remaining project process groups.

6 METHODS FOR MEASURING PROGRESS

Project progress is being measured by using earned value method (EVM); specifically an "effort performance index" will be determined using the cost performance index (CPI) calculation provided in Microsoft Project. Also, advisory committee submitted scores for project progress milestones will indicate project performance to be monitored along with EVM.

Project progress will also be measured by completion of project scheduled tasks as shown on the Gantt chart in Appendix I.

The project's requirements traceability matrix is expected to develop over the course of the project's research efforts. Project progress will be seen as the acceptability criteria provided in the requirements matrix evolve into the processes entered into the procedures manual that is the primary product deliverable for this project.

APPENDICES

Appendix A. Abstract

1 ABSTRACT AND KEY WORDS

This project began as work sponsored by a multidisciplinary engineering consulting firm providing construction administration services to the State of Alaska Department of Transportation & Public Facilities (AKDOT). Managers in the firm's construction administration department requested documentation protocols to assist staff in meeting their clients' quality assurance objectives and improve the firm's business performance.

Construction administration (CA) refers to managing all project-related functions between parties to a construction contract. CA involves considerable field presence and construction experience. CA includes inspections, quality assurance, for site safety, and other construction duties beyond contract administration (Fisk & Reynolds, 2006).

The consultant's AKDOT quality assurance assessments indicate the need for improved project documentation, and project managers realize that improved documentation processes are necessary for effective monitoring, controlling and closing of construction projects.

The original scope of this project was to deliver a manual for documenting CA; however, research uncovered several existing AKDOT manuals addressing documentation processes for CA. Therefore, the project delivers recommendations for updating the AKDOT *Construction Project Documentation* procedures manual published by Central Region AKDOT (AKDOT 2013). This manual is one of the resources identified as a reference for CA staff providing CA documentation.

The research plan includes methods to identify areas of CA documentation where improvements will be recommended. The research consists of a survey of CA professionals, formal and informal interviews, and a literature review.

Recommendations for updating the AKDOT *Construction Documentation Manual* are provided that will improve documentation quality and project communications, and will reduce the effort currently required for project closeout.

1.1 KEY WORDS

Alaska Dept. of Transportation Construction Quality

Documenting Construction Administration

Quality Construction Administration

Alaska Dept. of Transportation Construction Administration

Alaska Construction Quality Management

Construction Administration Quality Management

Alaska Dept. of Transportation Construction Communication

 © Raymond O'Neill

Appendix B. Project Charter

Capstone Project Charter

Prepared for UAA Master of Science in Project Management (MSPM)
PM686A
Roger Hull, Advisor

1. General Information

Project Name:	**Project to Produce a Procedures Manual for Documenting Construction Administration**
Supporting Departments:	University of Alaska Anchorage (UAA) Master of Science in Project Management Program (MSPM); ~~R&M Consultants, Inc. Construction Administration Department~~
Prepared By:	Raymond O'Neill
Preparation Date:	February 3, 2014 Updated 10/10/14
Authorized By:	Roger Hull, UAA Advisor

Project Charter Revisions

Version Number	Revision Date	Revision Notes	Reviewed by (initials)		
2	2/3/2014	SOW changed from GIS Research to CA Quality Manual			
3	2/10/2014	Scope reduced to CA Documentation Protocols	Roger Hull	LuAnn Piccard	
4	3/19/2014	Deliverable changed to Documentation Procedures Manual.	Roger Hull		
5	4/10/2014	Submitted in Appendix B of Final Project Management Plan April 15, 2014.			
6	10/10/2014	The final project deliverable is changed to Recommendations for Updating the AKDOT *Construction Project Documentation* procedures manual. R&M Sponsorship canceled			

3. Project Objectives

Goals	Project Objectives
Produce a standards manual for CA documentation procedures appropriate for use by R&M on AKDOT transportation infrastructure construction projects.	• Review AKDOT manuals for construction to inventory CA documentation requirements. • Literature review of industry best practices in construction administration documentation • ~~Interview R&M's CA professionals to:~~ ~~✓ Determine current tools and techniques for documenting CA~~ ~~✓ Identify gaps in documentation quality~~ ~~✓ Solicit recommendations for CA documentation~~ • Interview AKDOT construction professionals to ✓ Identify best practices in documenting CA ✓ Ensure AKDOT requirements will be met • **Produce recommendations to** a procedures manual for CA documentation that: ~~✓ Illustrates documentation procedures~~ ✓ Defines documentation protocols
Produce a successful University of Alaska Anchorage (UAA) Capstone Project in the Master of Science in Project Management (MSPM) curriculum	• Meet the requirements of PM686A & B curriculum as established in the course syllabus • Demonstrate project management mastery • Apply focused demonstration of the following Project Management Knowledge areas: ✓ Project Scope Management ✓ Project Communication Management ✓ Project Risk Management • Contribute to the Project Management Body of Knowledge

4. Project Scope

4.1. Project Results

This project will result in **recommendations for** an improved set of documentation protocols defined and illustrated in a procedures manual applicable to administration of AKDOT construction projects – primarily roadways and airports.

This project will demonstrate project management mastery and will meet the academic requirements of the UAA PM686 curriculum. This project will represent a contribution to the project management body of knowledge.

4.5. Assumptions

- ~~R&M managers will be available as a resource of information regarding current documentation protocols within the firm and within AKDOT~~
- AKDOT will be available as a resource of information regarding current documentation practices
- A literature review and interviews will provide meaningful data and information for developing improved protocols for documenting construction administration
- The scope of work is feasible given the project manager's capacity to complete the project on schedule and with necessary scope changes.

4.6. Constraints

- The primary project constraint is the schedule consistent with the UAA PM686 academic schedule
- ~~Access to R&M organizational assets for this project may be limited and subject to change based on business or client needs~~
- ~~R&M is interested in an expanded client base; however, this~~ project is limited to the services provided to their primary client, AKDOT
- The first draft of protocols may require revision and updates. This project will not include implementation of new protocols

5. Project Critical Success Factors

- Project management planning and documentation
  - ✓ Complete, concise and up to date
- Research planning
  - ✓ Scheduling
  - ✓ Appropriate scope and topic
- Sufficient identification and review of relevant industry related literature
  - ✓ Keywords, sources and citations
- Participation of CA professionals in survey and interviews
  - ✓ Response rate, participation
  - ✓ Critical feedback
- Relevant analysis of the research outcomes
  - ✓ Defensible
  - ✓ Qualified and quantified
- Timely completion of all project deliverables
  - ✓ Schedule performance
- Passing scores at project progress performance milestones (PPMs)

6. Initial High-level Project Planning

Review of R&M quality initiatives, quality reviews, and procedures documents.

Begin review off AKDOT Construction Manual.

An initial literature review indicates access to extensive construction administration and project management literature through the UAA Consortium online journal databases, and key words are being identified for this research.

R&M sponsorship and resources have been sought for several months.

A review of PM686A requirements was completed January 17, and the Blackboard system is set up as a tool for communications and to provide course information.

7. Project Authority

7.1. Authorization

This project has been authorized by ~~R&M's CA Group Manger and~~ the leadership of the UAA PM Department academic advisory team.

7.2. Project Manager

Raymond O'Neill, EIT

7.3. Oversight (Steering) Committee

Roger Hull, UAA PM Primary Academic Advisor
LuAnn Picard, UAA PM Advisory Committee
Seong Dae Kim, UAA PM Advisory Committee

8. Management Checkpoints

- PM6886A and PM686B syllabus project progress performance milestones (PPMs)
- Scheduled peer status updates
- Project management plan and research plan completion
- Final report and presentation

Additional management checkpoints may be required as the project progresses.

9. Signatures

Name/Title	Signature	Date
Raymond O'Neill, UAA Student		
Roger Hull, UAA Academic Advisor		
Paul Hetzel, R&M CA Program Manager		

Appendix C. Sponsor Letters

R&M CONSULTANTS, INC.
9101 Vanguard Drive
Anchorage, Alaska 99507

February 3, 2014

University of Alaska Anchorage
Department of Project Management
University Center, Room 155
3901 Old Seward Highway
Anchorage, AK 99503

Attn: Academic Advisor Roger Hull

Re: Letter of support for UAA Capstone Project – Draft Construction Administration Quality Management Program Manual.

Dear Mr. Hull,

This letter is provided in support of Raymond O'Neill's research and proposed project plan to produce a draft quality management manual for construction administration. The manual will be aimed at meeting the quality standards for highway, airport and marine construction contracts for the Alaska Department of Transportation and Public Facilities, our primary construction administration client.

We agree that Raymond's work has the potential to bring value to our firm's construction administration services.

Paul B. Hetzel, P.E.
Vice President - Construction Administration
R&M CONSULTANTS, INC.

cc: Meuy E Saechao, UAA Administrative Support

Appendix D. Stakeholder Register

Stakeholder Identification and analysis

Stakeholders have been identified that will be interested in, and affected by, the project outcomes. Key project stakeholders have been classified as *Decision Makers*, *Influencers* and *Observers*.

An analysis of key stakeholders, provided in the **Stakeholder Register,** describes levels of interest, expectations, influence, and importance. This analysis will assess potential stakeholder impacts on the project and provide strategic considerations for approaching and communicating with each key stakeholder in order to maximize positive influences.

This project has the potential to impact many other stakeholders than those listed; however, constraints on the project manager's time require that a strategic focus be provided for managing the **Key Stakeholders**.

Stakeholder Identification

Key Stakeholders:

Decision Makers
Raymond O'Neill, PM
Paul Hetzel, R&M Group Manager CA
Kim Neilson, R&M Group Manager Dsgn

Influencers
Mike Wariner, R&M Group Manager CI
AKDOT&PF, Construction Quality Engineers
Construction Contractors
R&M Managers
R&M Executive Board

Observers
UAA MSPM Administrative Staff
Roger Hull, Project Advisor
Project Advisory Committee
AKDOT&PF, Construction Professionals
R&M Construction Professionals

Other Stakeholders:

State, Local and Tribal Govt. decision makers
Funding Agencies
Taxpayers
Traveling public in Alaska
Commercial and strategic interests in transportation infrastructure

Stakeholder Register

Key stakeholder analysis and approach strategy are documented in the following Stakeholder Register.

Approach	#	Name/Title	Analysis	Notes
Project Decision Makers *Meet periodically to review project outcomes and project documents. Direct project objectives and manage changes.*	*1*	Raymond O'Neill, R&M Staff Engineer	***Project manager and newest R&M employee on the team. Responsible for meeting academic goals as well as the project goals. Heavily invested in the outcome. Success is critical. Sees outcome as an organizational asset.***	***Stakeholders 1, 2 & 3 comprise a strategic work group that will review and accept the Quality Management Manual for use by R&M.***
	2	Paul Hetzel, R&M Group Manager, Construction Admin.	***Primary project sponsor and the project manager's immediate supervisor. Veteran construction administration professional with expert judgment. Has project authority and autonomy as V.P. on the R&M's executive board. Not heavily invested but increasingly interested. Sees outcomes as a client requirement.***	
	3	Kim Neilson, R&M Group Manager, Design Engineering	***Upper level manager with expert judgment. Has access to organizational assets and will be a point of contact for other upper level managers providing input and review of outcomes. Invested in the outcome as a client requirement. Somewhat interested in the project.***	

Stakeholder Register (cont.)

Approach	#	Name/Title	Analysis
Project Influencers	*4*	Mike Wariner, R&M Group Manager, Construction Materials Inspections	***Veteran construction administration professional with specialized knowledge and should be consulted as much as possible. Extensive experience with construction quality control and quality assurance. Has a degree of enterprise authority and autonomy as an R&M executive level manager. Will have access to client expertise and knowledge of client acceptance criteria. Not heavily invested or interested. Sees outcomes as a client requirement.***
Schedule initial interview with #4 and establish strong rapport. *Interviews will be conducted with many of these stakeholders.*	*5*	AKDOT&PF, Construction Quality Engineers	***Important client stakeholder with expert knowledge. Source of acceptance criteria and regulatory requirements. Not invested in this project but will be interested in, though not necessarily impacted by, the project outcomes.***
	6	Construction Contractors	***Important client stakeholder with expert knowledge, expert judgment and specialized training. Not invested and may not be very accessible. May become increasingly interested in project outcomes.***
	7	R&M Managers	***Source of expert judgment and source of organizational assets. Will be good judge of project acceptance criteria. Not very invested but may become increasingly interested in the project. Will be impacted by the project outcomes.***
Look for opportunities to garner input from these stakeholders.	*8*	R&M Executive Board	***Ultimate project authority. Not heavily invested or interested. May not have knowledge of project initiation or project activities. Access to this organizational asset will be very limited.***

Approach	#	Name/Title	Analysis
Project Observers	*9*	AKDOT&PF, Construction Professionals	***Important client stakeholder with expert knowledge and specialized training. Not invested in this project but will be impacted by the project outcomes. This stakeholder will be very approachable but have limited assets or availability.***
Encourage feedback from Construction Professionals	*10*	R&M Construction Professionals	***Stakeholder with expert knowledge and specialized training. Availability and accessibility to interact with this stakeholder is good. This stakeholder will be somewhat invested in this project and will be strongly impacted by the project outcomes.***
Provide all project documents to advisory committee for grading and Cc Admin. Staff as seems prudent.	*11*	Roger Hull, Project Advisor	***Source of expert project management judgment and academic expertise. Close communication will be necessary and will be defined in the Student Advisory Committee "contract".***
	12	Project Advisory Committee	***Source of expert project management judgment and academic expertise. Regular communication will be necessary and will be defined in the Student Advisory Committee "contract".***
	13	UAA MSPM Administrative Staff	***Ultimate project authority. Not heavily invested or interested. May not have knowledge of project initiation or project activities.***

Power /Interest Grid with Project Key Stakeholders

A. High Influence and More Interest

1. Raymond O'Neill, PM
2. Paul Hetzel, R&M Group Manager CA
3. Kim Neilson, R&M Group Manager Dsgn

B. High Influence and Less Interest

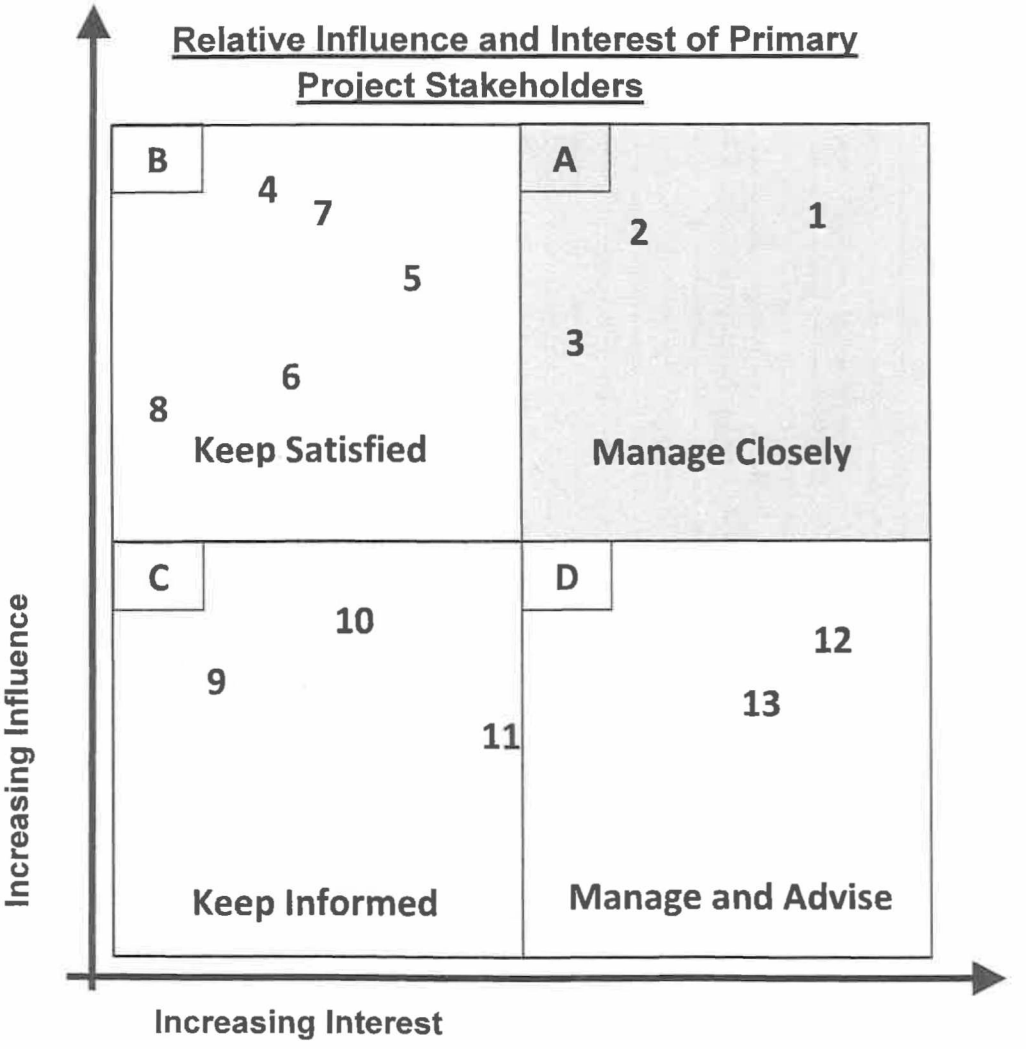
4. Mike Wariner, R&M Group Manager CI
5. AKDOT&PF, Construction Quality Engineers
6. Construction Contractors
7. R&M Managers
8. R&M Executive Board

C. Low Influence and Less Interest

9. UAA MSPM Administrative Staff
10. AKDOT&PF, Construction Professionals
11. R&M Construction Professionals

D. Low Influence and More Interest

12. Roger Hull, Project Advisor
13. Project Advisory Committee



Appendix E. Risk Register

Risk Report Summary
(following pages include risk register details)
Capstone Project

ID	Category	Occurrence	Date of Occurance	Risk Description	Risk Avoidance Measure	Planned mitigation and expected outcome	Mitigation and outcome	Risk Probability	Risk Impact	Risk Score
08.1	Research	R&M managers have decided to not allow scheduling interviews of staff CA professionals.	10-Apr	Selected Interviewees are not available to conduct interviews		Seek additional CA professionals to interview. 'Increase communications with sponsor to encourage participation. Increase the identification of potential interviewees	9/18/2014 - AKDOT employees will be identified for interviewing 9/24/2014 - Northern Region DOT Construction Group Chief (and former co-worker of mine) invites interview of two N. Region Const. Quality Assessment engineers.	50%	65%	-32.50
01.5	Stakeholder	R&M no longer employing the Project Management student and not providing sponsorship of the project.	30-Jul	Sponsorship does not provide consistent project support	Project planning will provide alternatives for project completion. 'Ensure that project objectives can be pursued without the sponsorship.	Adjust communication strategy, use influence opportunities identified in stakeholder analysis, apply communications skill learned and practiced. Interest in project will develop and grow.	Attempted influence strategies: friendly approaches, include other stakeholders in discussions. No improvement in project support. Continue developing risk avoidance measures.	60%	70%	-42.00
06.1	Research	A procedures manual for documenting construction for Alaska DOT already exists in Central Region.	10-Sep	A previously published manual for documenting AKDOT Construction Administration has been located.	This could be a good source document to expand or update.	The project deliverable will reduced to producing an update to this document	Change primary project deliverable to an "update" of existing procedures manual.	5%	-30%	+1.50
05.1	Schedule	Project manager work has not been performed on scheduled tasks causing forecasted delays of project completion.	Jun. - Sept.	Project Manager performance delays:	Maintain consistent commitment to the work schedule.	Update schedule. Update scope	Scope reduced. Add work time to forward schedule.	80%	70%	-56.00
05.2	Schedule	Project manager has not been able to allocate the time scheduled for project tasks resulting in delays.	Oct.10	Project Manager performance delays:	Maintain consistent commitment to the work schedule.	Update schedule. Update scope	Scope reduced. Add work time to forward schedule.	80%	70%	-56.00
05.3	Schedule	Project manager has temporarily withdrawn from the project to address work/life balance issues.	Nov.14, 2014	Project Manager performance delays:		Update/adjust schedule.	Schedule adjusted to complete project in Spring 2015 Semester.	80%	70%	-56.00
07.1	Research	The data backup process, along with PC system upgrades, has resulted in duplication of files.	Feb. 2, 2015	Technical failures corrupt research/project data.	Install backup redundancy		Additional time has been required to sort the most current information and some updates have been mislocated and re-work has bee needed.	5%	85%	-4.25

Risk Register
Capstone Project

ID	Category	Date Identified	Risk Description	Risk Avoidance Measure	Planned mitigation and expected outcome	Mitigation and outcome	Probability	Impact	Risk Score	Date of Occurance	Occurrence
14.0	Scope	10-Oct	Project will be stopped due to lack of performance. Project manager dropped for the MSPM program.	PM needs to avoid delays and continue working to satisfy program requirements.	Identify minimum requirements that can be realistically achieved in the remaining time frame. Avoid percieved need for perfect outcomes.		60%	100%	60		
09.0	Stakeholder	2-Apr-14	Sponsor will discourage or obstruct interviewee participation	Maintain rapport with R&M managers.	Seek additional CA professionals to interview Increase communications with outside stakeholders, i.e. AKDOT, to identify additional sources of expert knowledge.	An alternative data source is identified. 9/18/2014 - A survey questionnaire is being distributed to more than 200 AKDOT construction employees	75%	75%	56.25	Apr. 10	1. Despite plan agreements R&M managers have decided to not allow scheduling interviews of staff CA professionals.
05.0	Schedule	30-Jan-14	Project Manager performance delays:	Maintain consistent commitment to the work schedule.	Update schedule. Update scope	1. Scope reduced. Add work time to forward schedule. 2. Scope reduced. Add work time to forward schedule.	80%	70%	56	Jun. - Sept. Nov. - Jan.	1. Project manager work has not been performed on scheduled tasks causing forecasted delays of project completion. 2. Project manager has not been able to allocate the time scheduled for project tasks resulting in delays. 3. Project manager has temporarily withdrawn from the project to address work/life balance issues.
10.0	Stakeholder	2-Apr-14	Sponsor will not encourage interviewee participation		Seek additional CA professionals to interview Increase communications with outside stakeholders, i e. AKDOT, to identify additional sources of expert knowledge.	Consider using a survey to collect requirements data. Gather State of Alaska construction employee contacts for web-based survey.	70%	75%	52.5	Apr. 10	1. Despite plan agreements R&M managers have decided to not allow scheduling interviews of staff CA professionals.
13.0	Research	28-Sep-14	Technical difficulties in delivering the survey	Consider the alternative delivery methods available using the online survey tool. The preferred method of delivery is Email Invitation via Survey Monkey tool; however, I will assume that email form this domain will be filtered by the State of Alaska email servers	Test the Survey. Pilot the survey. Use Read Reciept function to monitor email distribution. Provide follow up email reminder to respondents. Alternative delivery formats: PDF form delivered via email. Using mail merge in MS Outlook to send cover letter with link to website. Link to web-based survey.		60%	80%	48		
01.0	Stakeholder	30-Jan-14	Sponsorship does not provide consistent project support	Project planning will provide alternatives for project completion. 'Ensure that project objectives can be pursued without the sponsorship.	Adjust communication strategy, use influence opportunities identified in stakeholder analysis, apply communications skill learned and practiced. Interest in project will develop and grow.	Attempted influence strategies: friendly approaches, include other stakeholders in discussions. No improvement in project support. Continue developing risk avoidance measures.	60%	70%	42	Feb.1 Feb. 10 Mar. 6 Apr. 9 Jul. 30	1. (2/1/14) R&M management reluctant to provide input. 2. (2/10/14) R&M management reluctant to provide requested input. 3. (2/6/14) R&M management reluctant to provide requested input. 4. (4/9/14) R&M Management not providing requested feedback to project planning. 5. (7/30/14) R&M no longer employing the PM student or providing support of the project.
03.0	Research	30-Jan-14	Requirements gathering will reveal larger scope than expected		Reduce project scope using change management tools. Changes will be processed.	1. Scope changed 2. Scope reduced	60%	60%	36	Jan. 30	1. Discovered that Alaksa DOT regions have different resources for documenting CA.
02.0	Stakeholder	30-Jan-14	Sponsor will require changes to requirements	Maintain communications and requests for input form sponsor.	Be proactive in planning for and forecasting changes. Changes will be processed.	1. Change management form	70%	50%	35	Feb.1 Feb. 10 Mar. 6	XXX

08.0	Research	5-Mar-14	Selected Interviewees are not available to conduct interviews		Seek additional CA professionals to interview. 'Increase communications with sponsor to encourage participation. Increase the identification of potential interviewees	9/18/2014 - AKDOT employees will be identified for interviewing 9/24/2014 - Northern Region DOT Construction Group Chief (and former co-worker of mine) invites interview of two N. Region Const. Quality Assessment engineers.	50%	65%	32.5	Apr. 10	1. Despite plan agreements R&M managers have decided to not allow scheduling interviews of staff CA professionals.
11.0	Research	15-Aug-14	AKDOT interviewees are reluctant to participate	Consider incentives	Largest possible sample of AKDOT Const. Employees has been gathered from public email directory. Seek additional CA professionals to interview. Search for outside stakeholders who would be inclined to participate in interviews and who are subject matter experts		50%	65%	32.5		
12.0	Research	24-Sep-14	Data analysis will not produce relavent or significant information about the process being studied.	Schedule time for reviewing additional literature. Add additional interviews with subject matter experts.	Careful handeling of survey data.		35%	80%	28		
04.0	Schedule	30-Jan-14	Schedule estimates prove to be inaccurate	Schedule using working time and duration.	Update schedule. Update scope	Look for opportunity to reduce scope.	60%	30%	18	Sept. 1 Sept. 19	1. Updating the project schedule indicates that the current task assignments can not be completed by the project deadline. 2. Tracking actual time on tasks indicates that initial estimates of work are too low and more time is required on several tasks.
06.0	Research	30-Jan-14	Literature review provides more information than can be analyzed	Early and extensive literatrue review.	Change scope		60%	25%	15		
07.0	Research	1-Feb-14	Technical failures corrupt research/project data.	Install backup redundancy	All project documents working on pc are backed up daily on two separate external solid state drives. Familiar synchronizing software, SyncToy, will be utilized.		5%	85%	4.25	Feb. 2, 2015	1. The data backup process, along with PC system upgrades, has resulted in duplication of files. Additional time has been required to sort the most current information and some updates have been mislocated and re-work has bee needed.
06.1	Research	10-Sep-14	Literature review provides more information than can be analyzed	This could be a good source document to expand or update.	The project deliverable will reduced to producing an update to this document	Change primary project deliverable to an "update" to existing procedures manual.	5%	-30%	-1.5	Sept. 10	1. A procedures manual for documenting construction for Alaska DOT already exists in Central Region.

Appendix F. WBS and WBS Dictionary

Capstone Project to Produce a Documentation Procedure Manual

WBS Dictionary

Version #02

1 Project Management

This element captures all of the managerial responsibilities and activities for the project.

1.1 Initiating

Activities and reponsibilites for the initiating process group define the new project and establish authorization for the project.

1.1.1 Establish Risk Register

Create a record of identified risks and opportunities, analysis of risk, likelihood of occurrence, planned responses, and mitigation results.

1.1.2 Project Charter

Create the primary authorizing document that communicates the projects domaine, objectives, expectations, and constraints.

1.1.3 Establish Stakeholder Register

Begin stakeholder analysis by establishing a record of project stakeholders and an analysis of there

1.2 Planning

Processes to define the scope of work, identify and refine project objectives, and develop the course of action to meet the project objectives. Planning includes analysis of organizational assets and the project environemnt in order to strategize for rporject success.

1.2.1 Establish Requirements Matrix

1.2.2 Create WBS

1.2.3 Create Project Schedule

1.2.4 Stakeholder Identification and Analysis

1.3 Execution

1.3.1 Baseline Project

Approaching the end of the planning phase several elements of the project documents, especially those defining scope, will be established as the baseline configuration. This will serve as a reference for project progress and to measure changes against.

1.4 Monitoring and Control

1.4.1 Build Requirements Matrix

1.4.2 Maintain Risk Register

1.4.3 Stakeholder Management

1.4.4 Change Management

1.4.5 Work Performance Data

1.5 Closing

1.5.1 Final Report

1.5.2 Presentation

2 Project Management Plan

2.1 Scope Management Plan

2.1.1 Change Management Plan

2.1.2 Requirements Management Plan

2.2 Communications Management Plan

2.3 Risk Management Plan

2.4 Stakeholder Management Plan

3 Research

3.1 Identify AKDOT Requirements

3.1.1 Interview CA Professionals – (requirements)

3.2 Identify Gaps in Current Procedures

3.2.1 Review QA Assesments

3.2.2 Interview CA Professionals – (gaps)

3.3 Research Industry/Agency Benchmark

3.3.1 Literature Review

4 Create Procedures Manual

4.1 Do Research ~~Anlysis~~Analysis

Get a sense of staff understanding of requirement

Get insight to what works and what does not

Identify gaps in documentation efforts in order to incorporate solutions into the procedures manual

Identify obvious and not-obvious documentation requirements

Look for patterns of successful documentation practices or tools implemented in the documentation types

Look for documentation items that provide schedule milestones..

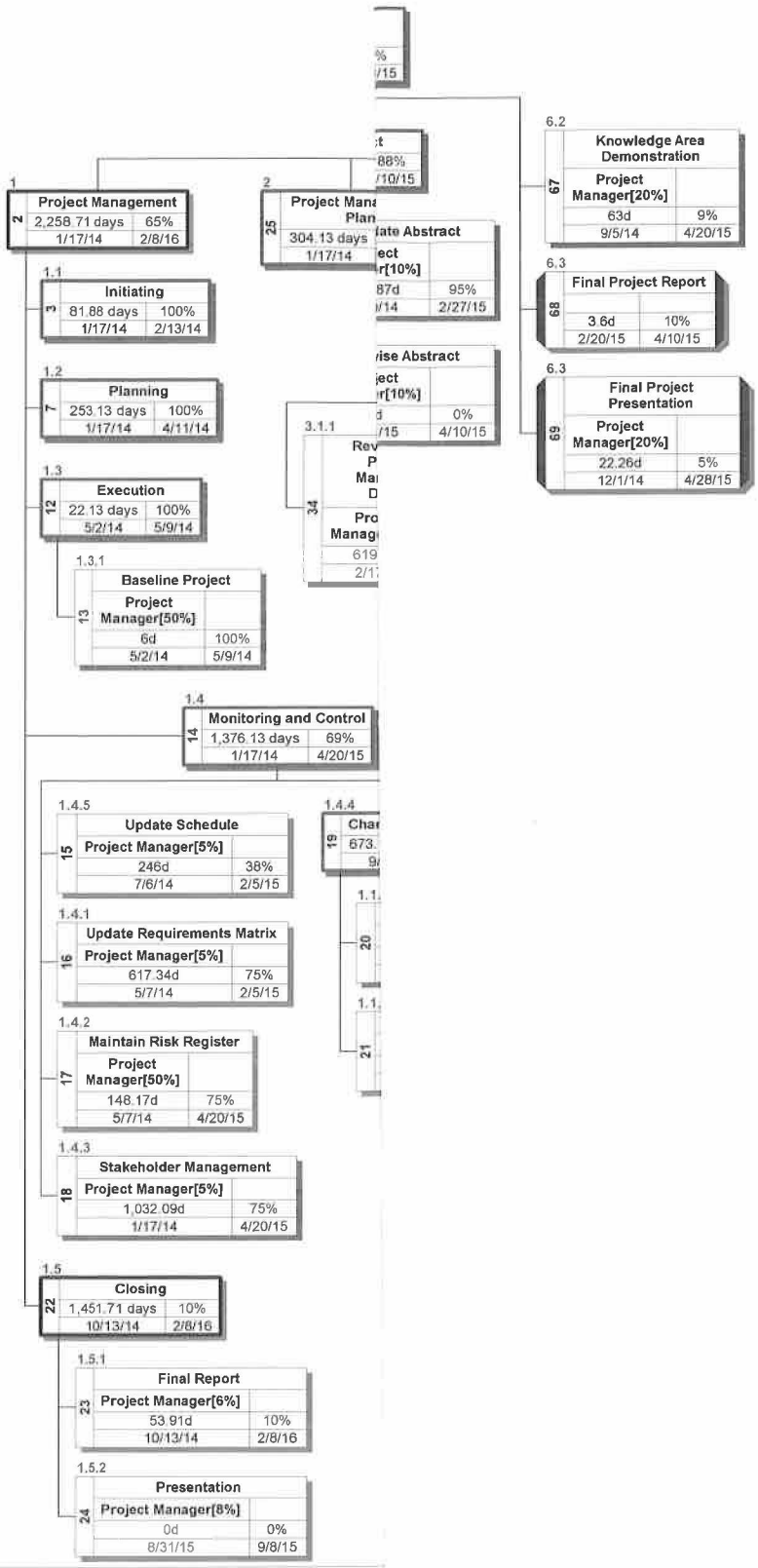
4.2 Describe Protocols

Protocols for CA Documentation will need to be well defined in the projects final deliverable. Questions of ownership and delegation of responsibility for documents, where the documentation belongs in terms of the project schedule and

project progress, how to maintain the flow and integration of documentation, and other documentation procedures will be clearly defined as necessary to meet the product requirements as described in the requirements documents and project management plan.

4.3 Illustrate Processes

Description of the tools and techniques that facilitate documentation will be illustrated in order to meet usability and acceptability requirements. A matrix of attributes will show the type of document, e.g. forms, spreadsheet, report, checklist will be used for each specific document requirement, and the required mode of communication or retention for that documentation. Flow charts may be used along with


1
Project Management
2,258.71 days 65%
1/17/14 2/8/16
1.1
Initiating
81.88 days 100%
1/17/14 2/13/14
1.2
Planning
253.13 days 100%
1/17/14 4/11/14
1.3
Execution
22.13 days 100%
5/2/14 5/9/14
1.3.1
Baseline Project
Project Manager[50%]
6d 100%
5/2/14 5/9/14
1.4
Monitoring and Control
1,376.13 days 69%
1/17/14 4/20/15
1.4.5
Update Schedule
Project Manager[5%]
246d 38%
7/6/14 2/5/15
1.4.1
Update Requirements Matrix
Project Manager[5%]
617.34d 75%
5/7/14 2/5/15
1.4.2
Maintain Risk Register
Project Manager[50%]
148.17d 75%
5/7/14 4/20/15
1.4.3
Stakeholder Management
Project Manager[5%]
1,032.09d 75%
1/17/14 4/20/15
1.5
Closing
1,451.71 days 10%
10/13/14 2/8/16
1.5.1
Final Report
Project Manager[6%]
53.91d 10%
10/13/14 2/8/16
1.5.2
Presentation
Project Manager[8%]
0d 0%
8/31/15 9/8/15
2
Project Mana
Plan
304.13 days
1/17/14
ate Abstract
ect
r[10%]
87d 95%
/14 2/27/15
ise Abstract
ect
r[10%]
d 0%
/15 4/10/15
3.1.1
Rev
P
Ma
D
Pro
Manag
619
2/1
6.2
Knowledge Area Demonstration
Project Manager[20%]
63d 9%
9/5/14 4/20/15
6.3
Final Project Report
3.6d 10%
2/20/15 4/10/15
6.3
Final Project Presentation
Project Manager[20%]
22.26d 5%
12/1/14 4/28/15

Appendix G. Requirements Matrix

Requirements Matrix
Version #02.2

Name/Title	Requirements	Acceptance Criteria	Associated WBS work package
Raymond O'Neill, Project Manager - MSPM	**Successful delivery of product and project scope**		1.0 - Project Management 2.0 - Project Management Plan 3.0 - Research 4.0 - Create Procedures Manual Recommendations 5.0 - PM686 Course Elements
Construction Admin. Manager	**Product defines CA documentation protocols**		
		Recommendations encourage proactive documentation processing	3.1 - Identify AKDOT Requirements 3.1.1 -Interview CA Professionals ~~4.2 - Describe Protocols~~ ~~4.3 - Illustrate Processes~~
		Recommendations do not conflict with any of the clients' procedures or policies	3.1 - Identify AKDOT Requirements ~~3.3 - Research Industry/Agency Benchmark~~
Construction Admin. Program Manager/consultant	**Product improves CA documentation**		
		Recommendations improve progress reporting and status reporting on CA projects.	3.2.2 - Interview CA Professionals (gaps) ~~3.3 - Research Industry/Agency Benchmark~~
		Recommendations promote accurate and timely documentation	3.1 - Identify AKDOT Requirements ~~4.2 - Describe Protocols~~ ~~4.3 - Illustrate Processes~~
Construction Project Engineers	**Product supports delegating documentation activities**		
		Recommendations clarify who a document owner can be, i.e. clear responsibility and authority for documents.	3.1 - Identify AKDOT Requirements ~~4.2 - Describe Protocols~~ ~~4.3 - Illustrate Processes~~
		Recommendations consider document timing, i.e. scheduling	3.1 - Identify AKDOT Requirements 3.1.1 -Interview CA Professionals (requirements) ~~3.3 - Research Industry/Agency Benchmark~~ ~~4.3 - Illustrate Processes~~
Construction Staff Engineers	**Provides instructions for completing CA Documentation**		
		Product describes procedures, defines protocols, illustrates processes	3.2.2 - Interview CA Professionals 4.2 - Describe Protocols 4.3 - Illustrate Processes
		Product provides references to source documents and standards.	4.2 - Describe Protocols 3.1 - Identify AKDOT Requirements 3.1.1 -Interview CA Professionals (requirements)

Requirements Matrix
Version #02.2

Name/Title	Requirements	Acceptance Criteria	Associated WBS work package
Construction Office Engineers	**Provide instructions for completing CA Documentation**		
		Product describes procedures, defines protocols, illustrates processes	4.2 - Describe Protocols 4.3 - Illustrate Processes 3.2.2 - Interview CA Professionals
		Product provides references to source documents and standards.	4.2 - Describe Protocols 3.1 - Identify AKDOT Requirements 3.1.1 -Interview CA Professionals
Construction Inspectors	**Provide instructions for completing CA Documentation**		
		Product describes procedures for distributing/handling documents	4.2 - Describe Protocols 4.3 - Illustrate Processes 3.1..1 - Interview CA Professionals Requirements
		Product is field-ready, i.e. durable.	3.2 - Identify Gaps in Current Procedures 3.3 - Research Industry/Agency Benchmarkx 4.0 Create Procedures Manual
AKDOT&PF, Construction Quality Engineers	**Product is based on AKDOT Documentation requirements.**		
		Recommendations do not introduce inconsistencies	3.1 - Identify AKDOT Requirements
		Recommendations reduce review effort	3.1 - Identify AKDOT Requirements 3.1.1 -Interview CA Professionals (requirements) ~~3.3 - Research Industry/Agency Benchmark~~
		Recommendations improve quality and accuracy	3.2 - Identify Gaps in Current Procedures 3.2.1 - Review QA Assessments
AKDOT&PF, Construction Professionals	**Product is based on AKDOT documentation requirements.**		
		Recommendations reflect AKDOT procedures manuals and policies	3.1 - Identify AKDOT Requirements 3.1.1 -Interview CA Professionals (requirements)
		Recommendations are consistent with current practices.	~~4.2 - Describe Protocols~~ ~~4.3 - Illustrate Processes~~ 3.1.1 -Interview CA Professionals (requirements)
		Poduct improves Documentation process	3.2.2 - Interview CA Professionals (gaps) ~~3.3 - Research Industry/Agency Benchmark~~
Construction Contractors	**Product does not conflict with contractor objectives.**		
		Product reduces documentation effort, i.e. time and cost.	3.1.1 -Interview CA Professionals (requirements) ~~3.3 - Research Industry/Agency Benchmark~~ ~~4.2 - Describe Protocols~~ ~~4.3 - Illustrate Processes~~
		Product is consistent with current practices, and protocols are familiar	~~4.2 - Describe Protocols~~ ~~4.3 - Illustrate Processes~~ 3.1.1 -Interview CA Professionals (requirements)

Requirements Matrix
Version #02.2

Name/Title	Requirements	Acceptance Criteria	Associated WBS work package
Roger Hull, Primary Project Advisor	**Project meets academic standards**		
		On-time posting, Effective Stakeholder Management, Completeness of Deliverables, and Quality of Deliverables	1.1 - Initiating 1.2 - Planning 1.3 - Execution 1.4 - Monitoring & Control 1.5 - Closing 2.0 - Project Management Plan 2.4 - Stakeholder Management 3.0 - Research
		Demonstrated mastery of PM principles, practices, tools, and methodologies learned throughout the program curriculum.	5.0 - PM686 Course Deliverables
LuAnn Piccard, Project Advisor	**Project meets course requirements and academic standards**		
		On-time posting, Effective Stakeholder Management, Completeness of Deliverables, and Quality of Deliverables	1.1 - Initiating 1.2 - Planning 1.3 - Execution 1.4 - Monitoring & Control 1.5 - Closing 2.0 - Project Management Plan 2.4 - Stakeholder Management 3.0 - Research
		Demonstrated mastery of PM principles, practices, tools, and methodologies learned throughout the program curriculum.	5.0 - PM686 Course Deliverables
Prof. Kim, Project Advisor	**Project meets course requirements and academic standards**		
		On-time posting, Effective Stakeholder Management, Completeness of Deliverables, and Quality of Deliverables	1.1 - Initiating 1.2 - Planning 1.3 - Execution 1.4 - Monitoring & Control 1.5 - Closing 2.0 - Project Management Plan 2.4 - Stakeholder Management 3.0 - Research
		Demonstrated mastery of PM principles, practices, tools, and methodologies learned throughout the program curriculum.	5.0 - PM686 Course Deliverables
UAA MSPM Administrative Staff	**Project meets academic standards**		
			1.1 - Initiating 1.5 - Closing 2.0 - Project Management Plan 5.0 - PM686 Course Elements

Appendix H. Research Sources, Methods, Instruments, etc.

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Capstone Project to Produce a Procedures Manual for Documenting Construction Administration

Research Methods and Approach to Analysis

Version #05, Sept 19, 2014

The primary goals of this project are to develop recommendations for updates to ~~a~~ an existing procedures manual for documenting construction administration, and to produce a successful University of Alaska Anchorage Capstone Project for the Master of Science in Project Management curriculum. The procedures manual will be designed for use by R&M Consultants, Inc., a service contractor to the Alaska Department of Transportation & Public Facilities (AKDOT).

Problem:

The R&M construction administration group manager says well-defined documentation protocols are needed. His observation is based on poor quality assurance reviews by AKDOT, a lack of project status information from field offices during construction administration, and the amount of time & resources required closing out projects. The R&M construction administration group manager has defined this need and is sponsoring this project address this problem.

Proposed Solution:

The solution proposed is to produce a procedures manual for documenting construction administration. The procedures manual will describe documentation protocols and illustrate documentation processes. This proposed solution has been accepted by the project sponsor, encouraged by "stakeholders", and has been in planning efforts for several weeks.

Questions:

- What are the documentation requirements for construction administration based on AKDOT manuals, standards, and policy documents?
- ~~What are industry standards for similar documentation by other agencies?~~
- What methods are construction administration professionals currently using that works well?
- What methods are construction administration professionals currently using that ~~is~~ are not working well?

Methods:

Two methods of research will be used to answer these questions: literature review and surveys.

Literature review will identify documentation requirements for construction administration based on AKDOT manuals, standards, and policy documents; and industry standards for similar documentation by other agencies.

Surveys of construction administration professionals with experience working on AKDOT road and airport construction will be surveyed to determine what documentation methods construction administration professionals are currently using that work well, and that do not work well.

Approach and Analysis:

Literature review of AKDOT manuals, standards, and policy documents will identify documentation requirements. This will be used to develop survey questions. Literature review to identify industry standards for similar documentation will be used to propose improvements.

Survey questions will address the following categories of activities that require documentation.

Site administration – logistics, field office, permitting, environmental and safety requirements
Quality – progress and acceptance of work, sampling & testing, inspections, submittal and certification.
Communications – meetings, reporting, schedules.
~~**Cost** – measurements, tracking and reporting, resources.~~

Survey questions will be developed based on findings of literature review ~~to identify documentation requirements~~ for construction administration based on AKDOT manuals, standards, and policy documents; and industry standards for similar documentation by other agencies.

Rating scale questions will be provided to determine effectiveness or use of specific documentation processes.

Multiple choice questions will be provided to identify tools and techniques used most frequently for a given documentation process.

A graphic tool such as a histogram or bar chart will be used to illustrate the results of the survey data tabulation. Inferences will be made to select processes, tools and techniques to be included in the procedures manual based on quantities of favorable ratings and/or quantities of selected tools and techniques

Raymond

From: Raymond O'Neill <rroneill@alaska.edu>
Sent: Wednesday, October 01, 2014 11:35 PM
To: HomeRaymond@hotmail.com
Subject: UAA Research - Documenting AKDOT Construction Admin.

UAA Engineering, Science & Project Management
University of Alaska Anchorage

Hello Ray,

Excellence in construction requires a dedicated team effort and this research is an opportunity for you to contribute! With your help this research is gathering information about Alaska Dept. of Transportation construction administration and the process of documenting construction efforts.

You've been selected to participate in this survey as a construction professional with first hand AKDOT experience and your input will be analyzed, along with the responses of others, to help illustrate how best we document work in construction. All responses will be kept confidential and only the aggregate data will be studied. All responses will be deleted by the end of the

TAKE THE SURVEY

CLICK HERE

This survey will ask about your role and your best practices when it comes to generating the documents necessary for executing successful construction administration.

Documenting Construction AdministrationExcellence in construction

What is your expertise...

1. How many construction projects or construction seasons have you worked on with AKDOT?

- ◯ 0-3
- ◯ 4-10
- ◯ 10-15
- ◯ 15-20
- ◯ More than 20

2. What's your most recent role or roles (select no more than 3) with AKDOT construction project administration teams?

- ☐ Inspector
- ☐ Environmental/Safety Lead
- ☐ Supervisor
- ☐ Intern
- ☐ Contract officer
- ☐ Traffic Control Supervisor
- ☐ Procurement officer
- ☐ Foreman
- ☐ Project Manager/Group Chief
- ☐ Consultant
- ☐ Contractor
- ☐ Office Engineer
- ☐ Project Engineer
- ☐ Subcontractor
- ☐ Other (please specify)

3. Have you attended training designed specifically to teach how to document AKDOT construction administration?

- ◯ Yes
- ◯ No

4. Please provide other information about your experience, training, education and level of expertise with regard to documenting construction administration.

What about documentation...

5. Please indicate the relative level of effort required in your position to process or handle the following types of construction documentation activities...

(1 represents the lowest perceived level of effort required or least work, and 9 represents the highest perceived level of effort or most work.)

	1 - Least effort required	2	3	4	5	6	7	8	9 - Highest effort required	N/A
Producing and maintaining T&M, Force Account, or other Procurement Documents	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
Schedules	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
Producing and maintaining Red-lines & As-built Documents	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
Permitting and Permit Document Maintenance	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
Producing Pay Estimates	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
Producing and managing Inspection Reports	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
Maintaining Title 36 - Labor Compliance Documents	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
Producing and maintaining SWPPP Related Reports/Logs	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
Producing and maintaining Non-SWPPP Environmental Documents	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
Producing Daily Reports/Diaries	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
Producing and maintaining DBE Requirements/DBE tracking	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
Producing Digital Photo Logs	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
Producing and maintaining Personnel Records (e.g. training records, cert. updates, etc.)	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
Producing and maintaining Meeting Documents (i.e. agenda, minutes)	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯

Producing and maintaining Change Orders/IWAs	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
Producing Source Documents	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
Producing and maintaining Materials Testing Reports	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
Producing and maintaining Submittal Tracking/MCLs	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
Producing and maintaining Traffic Control Reports/Logs	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯

Comments:

6. While all construction documentation is critical at project close-out for concurrent review, final payment, QA review, etc., in your experience how would you rate the relative impact of having documentation current and complete for each of the categories listed below?

(1 being least impact and 9 indicating that this documentation is critical to a smooth project close-out or QA assessment.)

	1 - Least critical	2	3	4	5	6	7	8	9 - Most critical
T&M, force account, or other procurement tracking	◯	◯	◯	◯	◯	◯	◯	◯	◯
Schedules	◯	◯	◯	◯	◯	◯	◯	◯	◯
Daily reports/diaries	◯	◯	◯	◯	◯	◯	◯	◯	◯
Permitting and permit maintenance	◯	◯	◯	◯	◯	◯	◯	◯	◯
Pay estimates	◯	◯	◯	◯	◯	◯	◯	◯	◯
Inspection reports	◯	◯	◯	◯	◯	◯	◯	◯	◯
Title 36 - labor compliance	◯	◯	◯	◯	◯	◯	◯	◯	◯
SWPPP related reports/logs	◯	◯	◯	◯	◯	◯	◯	◯	◯
Non-SWPPP environmental documentation	◯	◯	◯	◯	◯	◯	◯	◯	◯
Red-lines & as-builts	◯	◯	◯	◯	◯	◯	◯	◯	◯
DBE requirements/tracking	◯	◯	◯	◯	◯	◯	◯	◯	◯
Digital photo logs	◯	◯	◯	◯	◯	◯	◯	◯	◯
Personnel records (e.g. training records, cert. updates, etc.)	◯	◯	◯	◯	◯	◯	◯	◯	◯
Meeting documents (i.g. agenda, minutes)	◯	◯	◯	◯	◯	◯	◯	◯	◯
Change order/IWA	◯	◯	◯	◯	◯	◯	◯	◯	◯
Source documents	◯	◯	◯	◯	◯	◯	◯	◯	◯
Materials testing reports	◯	◯	◯	◯	◯	◯	◯	◯	◯
Submittal tracking/MCL	◯	◯	◯	◯	◯	◯	◯	◯	◯
Traffic control reports/logs	◯	◯	◯	◯	◯	◯	◯	◯	◯

Comments:

What tools do you use...?

7. Which of the following electronic/digital tools do you use more or less frequently for generating and/or processing construction administration documents?

	Never	Less than weekly	Weekly	Daily
Google Earth	◯	◯	◯	◯
On-line Databases	◯	◯	◯	◯
SiteManager	◯	◯	◯	◯
Photoshop/photo editing	◯	◯	◯	◯
Cloud server(s)	◯	◯	◯	◯
Spreadsheets (Excel)	◯	◯	◯	◯
Database (Access)	◯	◯	◯	◯
PDF Reader	◯	◯	◯	◯
Scanner	◯	◯	◯	◯
Estimax	◯	◯	◯	◯
Progest	◯	◯	◯	◯
Photo Viewer Software	◯	◯	◯	◯
Hiperpave	◯	◯	◯	◯
On line calculators	◯	◯	◯	◯
Adobe Acrobat PDF writer	◯	◯	◯	◯
GIS	◯	◯	◯	◯
Skype/video conference	◯	◯	◯	◯
PM Software (MS Project/Primavera)	◯	◯	◯	◯
FTP file transfer	◯	◯	◯	◯
CADD (AutoCAD, EaglePoint, etc.)	◯	◯	◯	◯

Comments:

8. Which of the following document deliverables do you expect to see on your project schedule as a deadline, a due date, a task, or the like?

- [ ] Title 36 - labor compliance
- [ ] Change order/IWA
- [ ] Meeting documents (i.e. agenda, minutes)
- [ ] SWPPP related reports/logs
- [ ] T&M, force account, or other procurement tracking
- [ ] Materials testing reports
- [ ] Submittal tracking/MCL
- [ ] Digital photo logs
- [ ] Red-lines & as-builts
- [ ] Permitting and permit maintenance
- [ ] Personnel records (e.g. training records, cert. updates, etc.)
- [ ] Pay estimates
- [ ] Traffic control reports/logs
- [ ] DBE requirements/tracking
- [ ] Source documents
- [ ] Schedules
- [ ] Daily reports/diaries
- [ ] Non-SWPPP environmental documentation
- [ ] Inspection reports

Comments:

What are our best reference materials...

9. Which of the following reference materials do you use more frequently than others to determine what construction administration documents are required, who is responsible for them, or where they are routed?

	Never				Occasionally				Routinely, or near daily
Chief Engineer's Directives (website)	○	○	○	○	○	○	○	○	○
Region-specific manuals	○	○	○	○	○	○	○	○	○
Alaska Construction Manual (2012)	○	○	○	○	○	○	○	○	○
Alaska Environmental Procedures Manual (2014)	○	○	○	○	○	○	○	○	○
Department Policy and Procedures documents	○	○	○	○	○	○	○	○	○
"Construction Project Documentation" manual	○	○	○	○	○	○	○	○	○
A-87 Implementation Manual	○	○	○	○	○	○	○	○	○
Department Memos	○	○	○	○	○	○	○	○	○
Phone call to someone who knows	○	○	○	○	○	○	○	○	○
Office Engineer's Manual	○	○	○	○	○	○	○	○	○
Email to someone who knows	○	○	○	○	○	○	○	○	○
Specs (project, specials, standard, etc.)	○	○	○	○	○	○	○	○	○

Others (please specify)

10. What technique you would recommend to illustrate each construction administration process.

For example, if you needed to provide instructions on how to document the disposition of a contractor's submittal, would you choose to create a checklist, a flow chart, or detailed written instructions to illustrate the process?

On the left is a construction administration process that needs to be documented. On the right is a drop down menu of suggested techniques for illustrating how that process is carried out. Choose from the drop down menu a technique you would choose to illustrate the construction administration processes shown on the left.

	Method of instruction/illustration
Pay estimates	~~TRACKING~~ M&C
DBE requirements/tracking	CLOSE ~~TRACKING~~ M&C
Materials testing reports	QUALITY
Change order/IWA	~~TRACKING~~ M&C
Personnel records (e.g. training records, cert. updates, etc.)	TRACKING
T&M, force account, or other procurement tracking	TR
Submittal tracking/MCL	QUALITY CLOSE
Inspection reports	QUALITY COMM
Title 36 - labor compliance	CLOSE
Source documents	CLOSE
Red-lines & as-builts	CLOSE
Digital photo logs	QUALITY M&C
Traffic control reports/logs	M&C
SWPPP related reports/logs	M&C
Schedules	COMM
Non-SWPPP environmental documentation	QUAL
Daily reports/diaries	COMM
Permitting and permit maintenance	CLOSE
Meeting documents (i.e. agenda, minutes)	COMM

Comments:

Final Page of Survey! Thank you for your generous participation!

11. Please feel free to leave any comments regarding the topic of documenting construction administration, or any other observations related to this survey.

All feedback is welcome!

Capstone Project to Produce a Procedures Manual for Documenting Construction Administration

~~Interview~~ Survey Questions

The following questions are designed to help identify procedures and protocols currently being use to complete documentation of construction administration (CA) activities. The aim is to identify what practices are working well and which ones could use improvements.

The results of the responses here will be used, along with other research outcomes, to produce a procedures manual that describes and illustrates best practices for documenting AKDOT CA.

1. Where do you find well-defined procedures and protocols to follow for documenting your construction administration activities?

2. Do you ever have difficulty finding instructions, references, or the forms you need to complete documentation of the construction administration that you do?

3. What are the most challenging aspects of construction administration?

4. What is the most challenging aspect of documenting construction administration?

5. What documentation procedures are the most efficient or what works the best?

6. Do you believe the documentation of construction administration that you do protects the best interests of your client?

7. Do the project schedules you use include documentation tasks or milestone?

8. Which documentation tasks would you include in your projects' schedules?

9. How does your CA team maintain a project schedule on your jobs?

10. What tools and techniques are the most helpful for the following:

- Submittal tracking?
- Materials testing?
- Daily reports?
- Pay items?
- SWPPP?

11. Please rate the degree of difficulty or effort required for the following documentation efforts, 1 being the least effort or lowest degree of difficulty and 9 being the greatest difficulty ~~of~~ OR highest degree of effort required.

	1 = Low effort								9 = High Effort
Submittal tracking	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
Materials testing	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
Daily reports	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
Pay items / SOURCE DOCUMENTS	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
Inspections	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
SWPPP RELATED REPORTS / LOGS	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
Digital photos / LOGS	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
Permitting and permit maintenance	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
Other (please name)	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
Other (please name)	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
Other (please name)	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○

DBE

CHANGE ORDER, IWA, ~~T&M~~

T&M OR OTHER PROCUREMENT TRACKING

TRAINING / PERSONEL

EXCEPTIONS / MEMOS

TRAFFIC CONTROL

12. What digital resources and/or internet protocols listed here do you use most frequently? (please rank order any of these or list others you think of)

	1 = Not used								9 = Used frequently
Spreadsheets (Excel)	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
PM Software (Project/Primavera)	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
Database (Access)	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
On line calculators	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
Google Earth	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
Skype	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
On-line Databases	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
Photo Viewer Software	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
Photoshop	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
GIS	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
Scanner	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
PDF Reader	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
Adobe Acrobat to produce PDF files	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
FTP file transfer	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
Other (please name) ~~DBE Documentation~~	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○
Other (please name)	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○	8 ○	9 ○

13. What document requirements are the most time consuming?

14. What documentation requirements are the easiest to complete?

15. Do you ever find construction administration documents missing on a project you've worked on?

NEVER ☐ RARELY ☒ SOMETIMES ☐ TOO OFTEN ☐ ALWAYS ☐

16. What do you do if and when you find that construction administration documents are missing or have not been produced?

17. Describe the process (i.e. the steps) you go through in order to email a multipage document while working in a field office?

18. What are some significant differences between Documentation for Airport and roadway construction projects?

Specific to inspection/assessment staff

19. What specific documentation efforts typically contain more errors? WHERE DO YOU FIND OR MISSING DATA

20. What are some other documentation shortcomings you find in QA/concurrent review?

21. How could documentation efforts by construction administrators make your job easier? THE OF CONSULTANTS
- MORE CONSISTENCY
- ELECTRONIC DELIVERY

22. What tools or techniques could improve the accuracy and correctness of CA documentation?

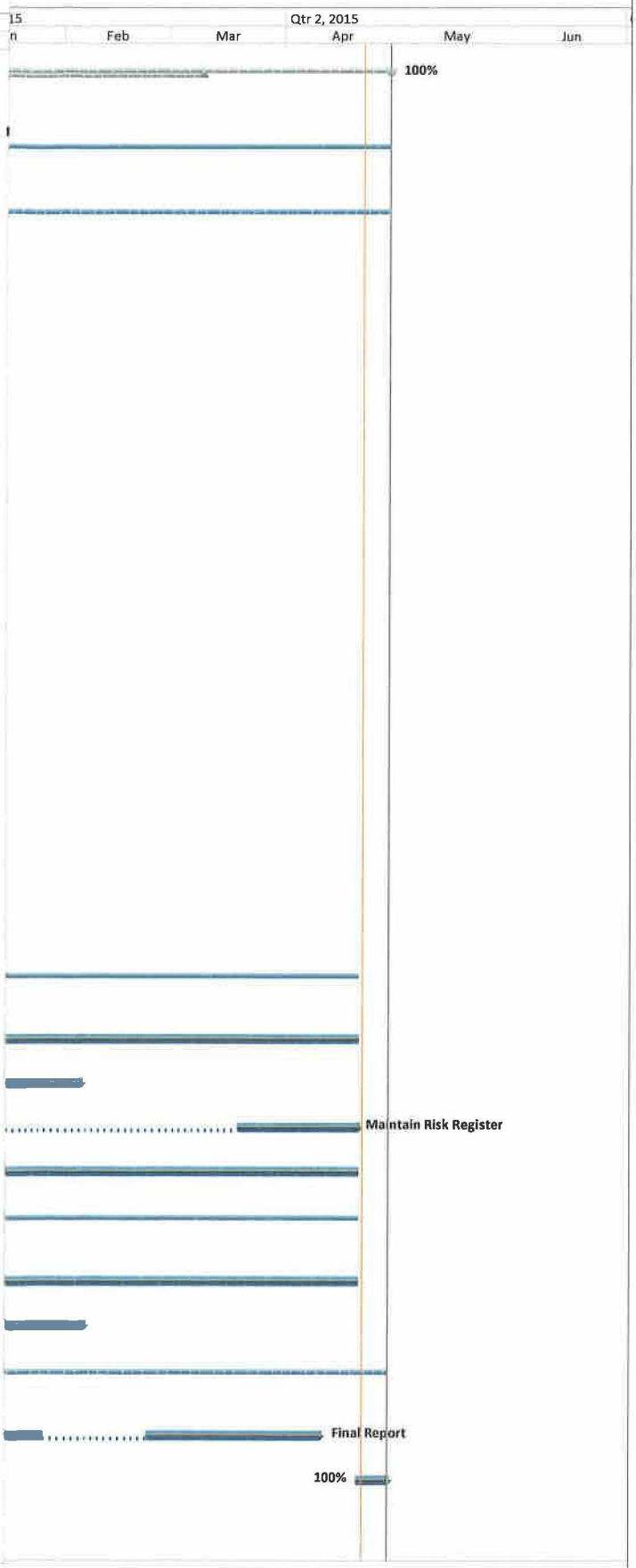
23. What do you look for first when reviewing CA documents? DO YOU HAVE A SCREENING PROCESS

24. What are some significant differences between Documentation for Airport and roadway construction projects?

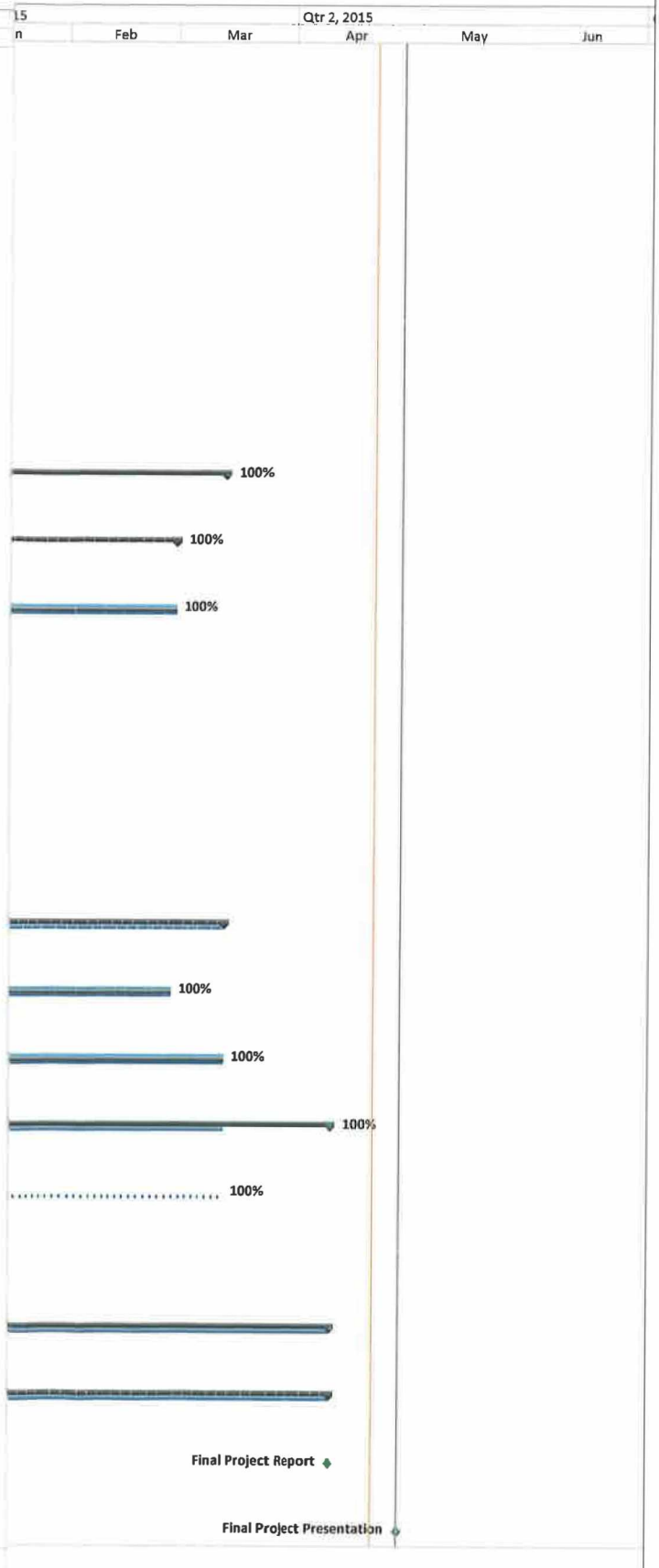
25. What do you do if and when you find that construction administration documents are missing or have not been produced?

Appendix I. Gantt Chart

ID	Task Name	% Complete
0	**Recommendations for Updating the AKDOT Construction Project Documentation Procedures Manual**	**100%**
1	**Recommendations for Updating the AKDOT Construction Project Documentation Procedures Manual**	**100%**
2	**Project Management**	**100%**
3	**Initiating**	**100%**
4	Establish Risk Register	100%
5	Project Charter	100%
6	Establish Stakeholder Register	100%
7	**Planning**	**100%**
8	Establish Requirements Matrix	100%
9	Create WBS	100%
10	Create Project Schedule	100%
11	Stakeholder Identification and Analysis	100%
12	**Execution**	**100%**
13	Baseline Project	100%
14	**Monitoring and Control**	**100%**
15	Update Schedule	100%
16	Update Requirements Matrix	100%
17	Maintain Risk Register	100%
18	Stakeholder Management	100%
19	**Change Management**	**100%**
20	Process Change	100%
21	Update PM Plan	100%
22	**Closing**	**100%**
23	Final Report	100%
24	Presentation	100%
25	**Project Management Plan**	**100%**



ID	Task Name	% Complete
26	**Scope Management Plan**	**100%**
27	Change Management Plan	100%
28	Requirements Management Plan	100%
29	Communications Management Plan	100%
30	Risk Management Plan	100%
31	Stakeholder Management Plan	100%
32	**Research**	**100%**
33	**Identify AKDOT Documents Requirements**	**100%**
34	Review Existing Procedures Manuals/Policy Documents	100%
35	**Survey CA Professionals**	**100%**
36	Collect sample contacts	100%
37	Finalize Survey Form	100%
38	Execute Survey	100%
39	**Identify Gaps in Current Procedures**	**100%**
40	Review QA Assesments	100%
41	Interview CA Professionals	100%
42	**Create Recomendations**	**100%**
43	Do Research Analysis	100%
44	**PM686A Course Elements**	**100%**
54	**PM686B Course Elements**	**100%**
55	**Abstract**	**100%**
58	Final Project Report	100%
59	Final Project Presentation	100%



Appendix J. IRB Approval Documentation

Research & Graduate Studies
UNIVERSITY of ALASKA ANCHORAGE

3211 Providence Drive
Anchorage, Alaska 99508-4614
T 907.786.1099, F 907.786.1791
www.uaa.alaska.edu/research/ric

DATE:	April 15, 2014
TO:	Raymond O'Neill, MSPM
FROM:	University of Alaska Anchorage IRB
PROJECT TITLE:	[590306-2] Capstone Project to Produce a Procedures Manual for Documenting Construction Administration
SUBMISSION TYPE:	Amendment/Modification
ACTION:	APPROVAL
DECISION DATE:	April 15, 2014

This letter is in response to your request for Institutional Review Board (IRB) approval of minor modifications to your currently approved proposal. Your request is hereby granted.

On behalf of the entire Board, I wish you continued success with your study.

Sincerely,

Dianne M. Toebe

Dianne Toebe, PhD

Research Integrity & Compliance Officer

Generated on IRBNet

Research &
Graduate Studies
UNIVERSITY of ALASKA ANCHORAGE

3211 Providence Drive
Anchorage, Alaska 99508-4614
T 907.786.1099, F 907.786.1791
www.uaa.alaska.edu/research/ric

DATE:	March 29, 2014
TO:	Raymond O'Neill, MSPM
FROM:	University of Alaska Anchorage IRB
PROJECT TITLE:	[590306-1] Capstone Project to Produce a Procedures Manual for Documenting Construction Administration
SUBMISSION TYPE:	New Project
ACTION:	EXEMPT APPROVAL
DECISION DATE:	March 29, 2014

Your Institutional Review Board (IRB) proposal meets the U.S. Department of Health and Human Services requirements for the protection of human research subjects (45 CFR 46 as amended/revised) as being exempt from full Board review. In keeping with the usual policies and procedures of the IRB, your research project is approved.

Therefore, you have permission to begin data collection for your study. If this study goes beyond one year from the date of this submission, you will need to submit a Progress Report for approval to continue the research and please submit a Final Report at the end of your project.

Please report promptly proposed changes in the research protocol for IRB review and approval.

On behalf of the Board, I wish to extend my best wishes for success in accomplishing the objectives of your study.

Sincerely,

Dianne M. Toebe

Dianne M. Toebe, PhD

Research Integrity & Compliance Officer

Generated on IRBNet

Raymond O'Neill

From: Roger K Hull
Sent: Tuesday, April 15, 2014 4:49 PM
To: Raymond O'Neill
Subject: RE: Research Methods

Raymond,

Your "Preliminary Research Methods and Approach to Analysis" for your PM686A Capstone Project is approved.

Regards,

Roger

Roger K. Hull, PMP, CISM, CRISC
Instructor, PM Dept
UAA
rkhull@uaa.alaska.edu
907-786-1923 (office)
907-346-6280 (cell)

From: Raymond O'Neill [mailto:RRONeill@Alaska.edu]
Sent: Tuesday, April 15, 2014 1:49 AM
To: Roger K Hull
Subject: RE: Research Methods

Thanks Roger,
I understood from LuAnn's last two addresses to the class that the actual survey questions are not required now. One of your comments suggested that the survey questions should be finalized now if I'm going to propose that they be organized. Please correct me if I'm wrong on this point. It's confusing since we are so determined about the IRB approval, but we are not required to have final survey questions prepared(?).

I thought I was good to go with IRB. I submitted the Modification Request Form, but it looks like I was supposed to do more than upload it to IRB. I'll give it another go and submit the document I've attached here for your approval.

Yes, the questions I'm trying to answer are not previously unknown. I have tried to simply described how I am going to use research methods to find the information I need to produce a procedures manual – inventory requirements and discover what works and what doesn't.

Please note, the project deliverable I'm going after is at the direction of my sponsor. The sponsor told me current processes are inadequate. I'm not doing research to determine if he is write or wrong about that, or determine the adequacy of current processes. I'm not doing research to justify the sponsors decision, but rather to find the information I need to produce what the sponsor has accepted as a proposed solution.

In any event, I've tried to contrive all the requested stuff around this simple effort to inventory DOT documentation requirements and find out from workers what works and what doesn't so that I can combine the information to produce a reference document.

Please approve the attached document describing how I will use research methods to gather the information I need to produce a procedures manual.

Your help is much appreciated,
Raymond

From: Roger K Hull [mailto:rkhull@uaa.alaska.edu]
Sent: Monday, April 14, 2014 4:34 PM
To: Raymond O'Neill
Cc: LuAnn Piccard; Seong Dae Kim
Subject: RE: Research Methods

Raymond,

Your "Preliminary Research Methods and Approach to Analysis" lacks a few essential ingredients, which are necessary to provide a basis for approval. First is the problem or question you are attempting to solve. There is no indication in your document that existing processes and documentation are insufficient or inadequate. Your research questions "What are the documentation requirements for AKDOT ..." and "What documentation standards for CA are described ..." appear to be asking about what currently exists, which I assume you will answer with your literature search. The possibility exists that you will find that the current process has no gaps. We need to know what your plan is for proceeding beyond that point.

You refer to survey questions that "will be organized", but you do not include those questions. Nor do you indicate how you will analyze or "make sense" of the responses you receive. Histograms, although useful for partitioning your data, will not "illustrate where variation exists and where improvements ... will be warranted." Other tools would be needed to accomplish that, and we need to see a description of what those tools would be.

I am not clear on your current status with regard to submission of your package to the IRB, and whether what you posted to Blackboard is the same documentation sent to them for review.

You are in a significant time crunch, well past the submission deadline for PPM#4. Barring the submission today or tomorrow of a complete set of deliverables for PPM#4, including an approved research methodology and IRB approval of your survey package, it is difficult to see how you could satisfy the requirements to proceed to final presentation and delivery of your PMP.

My recommendation is that you revise your posted Research Methods description in light of the comments above, continue with producing and posting the full set of PPM#4 deliverables by tomorrow at the latest, and let me know where you stand with regard to your IRB submission and approval. Remember that the window of feasibility for this effort doesn't extend beyond Wednesday.

Regards,

Roger

Roger K. Hull, PMP, CISM, CRISC
Assistant Professor, PM Dept
UAA
rkhull@uaa.alaska.edu
907-786-1923 (office)
907-346-6280 (cell)

From: Raymond O'Neill [mailto:RRONeill@Alaska.edu]
Sent: Monday, April 14, 2014 1:39 PM
To: Roger K Hull
Subject: FW: Research Methods

Hello Roger,
I am seeking advisor approval of my research methods as required for PPM#4 which I am still working to complete.
he research methods and approach to analysis can be found in my Blackboard Collaboration Area as **'Research Methods Version #03'** flagged in the Research Thread.

I am completing my draft presentation and will be uploading it this afternoon, and I have small amount to fill in PM Plan.

Please let me know if the research methods are going to work. Again, I am doing a survey to identify gaps in current procedures and find out what practices are working well.

I realize Wednesday is a Go/No-go gate, but I believe I have a project to execute through next semester.

Thank you,
Raymond

From: Seong Dae Kim [mailto:sdkim2@uaa.alaska.edu]
Sent: Monday, April 14, 2014 11:51 AM
To: Raymond O'Neill
Subject: RE: Research Methods

Raymond,

The revised research method looks fine but your primary advisor has the authority to approve it, not me.
Question 3 looks fine but question 1, 2, and 4 look more like sub-questions to support question 3.
Research question is supposed to seek for new knowledge unknown to anybody, but the questions you are asking seem to searching for information somebody already know.
ou need talk with your primary advisor for approval I'm letting you know about my concern.

Best,

Prof. Kim

From: Raymond O'Neill [mailto:RRONeill@Alaska.edu]
Sent: Sunday, April 13, 2014 12:36 AM
To: Seong Dae Kim
Subject: Research Methods

Prof. Kim,
I've adjusted the research methods and approach to analysis document to reflect a change from "semi-structured interview" to "surveys".
I've also updated my IRB project which was previously given "APPROVED EXEMPT".

This document is on Blackboard in my Collaboration Area and can be found as **Research Methods Version #03 flagged in the Research Thread.**

Please provide approval of this research method. I will submit this as part of PPM#4 which I am submitting late.

Thank you,
Raymond O'Neill

Appendix K. Change Log & Change Request Forms

Recommendations for Updating the AKDOT Construction Project Documentation Procedures Manual

Minor changes may be requested and approved verbally but significant changes will have an associated change control form.
See the change control forms for details regarding the changes.

Change request	Description	Initiated by	Deliverable Updates	Project Document Updates	Approved by	Date Requested	Date Approved	Change Control Form
Scope Change	Change statement of work to "Project to Produce a Draft Quality Management for Construction Administration"	Project Sponsor	-PM plan -Product -Research	-Statement of work	-Project manger -Primary advisor	30-Jan-14	01-Feb-14	#01
Scope Change	Change statement of work to "Project to Produce a Quality Management for Construction Administration" (remove "Draft").	Primary Advisor	-Product title	-Project documents' titles	-Project manager	10-Feb-14	11-Feb-14	N/A
	Changes to incorporate advisor comments	Primary Advisor	N/A	-Project charter v2	-Project manager	10-Feb-14	11-Feb-14	N/A
Updates to stakeholder register		Advisor	-PM plan	-Stakeholder register v2	-Project manager	10-Feb-14	11-Feb-14	N/A
Scope Change	Scope reduced to documentation procedures.	Project Sponsor	-Product -PM plan -Research	-Project charter v3 -Scope statement v2 -Risk register -Requirements Matrix -All Document titles	-Project manager -Advisor committee	05-Mar-14	6-Mar-14	#02
Change to research methods		Project Manager	-PM Plan	-PM plan -Research	-Project manager -Advisor committee	11-Mar-14		#03
Updates to stakeholder register		Project Manager	-PM Plan	-PM Plan -Stakeholder register -Requirements matrix -Risk register v2	-Project manager	11-Mar-14		N/A
Update Requirements Matrix		Advisor	-PM Plan - Final Deliverable	-PM Plan		19-Mar-14		N/A
Update research methods		Advisor	-Research	-PM Plan - Research methods -IRB		05-Mar-14		N/A
Change to research methods	Sponsor support for interviews is not available. Data gathering will include survey in lieu of the proposed Interviews. This change basically reverses the previous change to eliminate the survey.	Sponsor	-PM Plan -Research	-Research -PM Plan -IRB		09-Apr-14		#04
Schedule Change	Delay the delivery of complete PPM#2 one week. Submit elements of PPM#2 on Oct. 15th to show progress for go-no go determination.	Project Manager	-Research	-PM Plan -Risk register		10-Oct-14		#05
Scope Change	Research has uncovered a previously published 1998 Construction Project Documentation procedures manual with updates provided 2001, 2007 & 2009. Project manager resources were re-allocated over the summer months resulting in delays and incomplete tasks. Current status requires a reduction in project scope in order to meet remaining project schedule deadlines. An update to the existing procedures manual is a suitable alternative that can be produced within the project time frame.	Project Manager	-Research -PM Plan - Final Deliverable	-PM Plan -Project charter v3 -Scope statement v2 -Risk register -All Document titles		10-Oct-14		#06
Schedule Change	This change amends the schedule of PM686B Project Progress Milestones (PPM) and Capstone final deliverables. The project schedule will be adjusted to align with the PM686B Spring 2015 semester schedule.	Project Manager		Project documents updates: -Project schedule updates -PM Plan and subsidiary plans	Roger Hull, Primary Advisor LuAnn Piccard, Advisor Committee	10-Nov-14	14-Nov-14	#07

Change Control Form

Change Control – UAA Project Management Capstone Project		#07
Project Title:	**Recommendations for Updating Construction Documentation Procedures Manual**	
Requestor Name:	Raymond O'Neill, Project Manager RRONeill@Alaska.edu, (907) 351-2529	
Request Date:	November 10, 2014	
Change Description:	Project Schedule Change This change amends the schedule of PM686B Project Progress Milestones (PPM) and Capstone final deliverables. The project schedule will be adjusted to align with the PM686B Spring 2015 semester schedule.	
Reason for Change:	The project manager and sole project team member is taking a leave of absence from the project to address personal health issues. Progress on the Capstone project has not been possible for several weeks due to health crisis.	
Change Impact:	1. Remaining PPMs and report deliverables will not be submitted this semester, and all scheduled deliverables for the PM686B Spring 2015 will be required. 2. The Capstone project schedule will be adjusted to reflect this change. 3. Project management plan and subsidiary plan documents will be updated to reflect this change. 4. Project resources and budget are fixed and not impacted by this change; however, tuition expenses for an additional MSPM program semester will be incurred to the student.	
Need by Date:	November 14, 2014	
Functional Impact of Change:	See Change Impact #1 listed above.	Project documents updates: • Project schedule updates • PM Plan and subsidiary plans
Schedule Impact:	Capstone PM 686B - Executing Controlling and Closing – changed from Fall 2014 to Spring 2015.	**Cost Impact:** See Change Impact #4 listed above.
Approved by:	*Roger Hull, Primary Advisor*	
Reviewed by:	*Seong Dae Kim, Advisor Committee*	
Reviewed by:	11/14/2014 *LuAnn Piccard, Advisor Committee*	

Change Control Form

Change Control – UAA Project Management Capstone Project		**#07**
Project Title:	**Recommendations for Updating Construction Documentation Procedures Manual**	
Requestor Name:	Raymond O'Neill, Project Manager RRONeill@Alaska.edu, (907) 351-2529	
Request Date:	November 10, 2014	
Change Description:	Project Schedule Change This change amends the schedule of PM686B Project Progress Milestones (PPM) and Capstone final deliverables. The project schedule will be adjusted to align with the PM686B Spring 2015 semester schedule.	
Reason for Change:	The project manager and sole project team member is taking a leave of absence from the project to address personal health issues. Progress on the Capstone project has not been possible for several weeks due to health crisis.	
Change Impact:	1. Remaining PPMs and report deliverables will not be submitted this semester, and all scheduled deliverables for the PM686B Spring 2015 will be required. 2. The Capstone project schedule will be adjusted to reflect this change. 3. Project management plan and subsidiary plan documents will be updated to reflect this change. 4. Project resources and budget are fixed and not impacted by this change; however, tuition expenses for an additional MSPM program semester will be incurred to the student.	
Need by Date:	November 14, 2014	
Functional Impact of Change:	See Change Impact #1 listed above.	Project documents updates: • Project schedule updates • PM Plan and subsidiary plans
Schedule Impact:	Capstone PM 686B - Executing Controlling and Closing – changed from Fall 2014 to Spring 2015.	**Cost Impact:** See Change Impact #4 listed above.
Approved by:		
	Roger Hull, Primary Advisor	
Reviewed by:		
	Seong Dae Kim, Advisor Committee	
Reviewed by:		
	LuAnn Piccard, Advisor Committee	

Change Control Form

Change Control – UAA Project Management Capstone Project		**#06**
Project Title:	**Project to Produce Construction Administration Documentation Protocols**	
Requestor Name:	Raymond O'Neill, Project Manager RONeill@Alaska.edu, (907) 351-2529	
Request Date:	Sept 19, 2014	
Change Description:	Scope Change The primary project deliverable has been a procedures manual that defines and illustrates construction administration documentation for Alaska DOT. This change proposes to amend the project deliverable to be recommended updates to a previously published *Construction Project Documentation Manual, 2009*.	
Reason for Change:	Research has uncovered a previously published documentation procedures manual (1998) with updates provided 2001, 2007 & 2009. Delivering updates to this manual will represent a reduction in scope which is needed due to schedule impacts resulting from no progress through the summer months.	
Change Impact:	This change will impact the project deliverables. Requirements traceability matrix will require update. The project scope and schedule will require adjustment to reflect changed tasks. Project management plan and subsidiary plan documents will be updated to reflect this change. Project resources and budget are fixed and not impacted by this change.	
Need by Date:	Sept 28, 2014	
Functional Impact of Change:	Changes to research data analysis. Schedule configuration changes.	Project documents updates: • Project objectives, project name • WBS & project schedule configuration • PM Plan and subsidiary plans
Schedule Impact:	More work hours/day required to maintain project progress milestone and complete project deliverables.	**Cost Impact:** Negligible

Approved by:	***Roger Hull, Primary Advisor***
Initial:	
Reviewed by:	***Seong Dae Kim, Advisor Committee***
Initial:	
Reviewed by:	***LuAnn Piccard, Advisor Committee***
Initial:	

Change Control Form

Change Control – UAA Project Management Capstone Project		#06
Project Title:	**Project to Produce Construction Administration Documentation Protocols**	
Requestor Name:	Raymond O'Neill, Project Manager RONeill@Alaska.edu, (907) 351-2529	
Request Date:	Sept 19, 2014	
Change Description:	Scope Change The primary project deliverable has been a procedures manual that defines and illustrates construction administration documentation for Alaska DOT. This change proposes to amend the project deliverable to be recommended updates to a previously published *Construction Project Documentation Manual, 2009*.	
Reason for Change:	Research has uncovered a previously published documentation procedures manual (1998) with updates provided 2001, 2007 & 2009. Delivering updates to this manual will represent a reduction in scope which is needed due to schedule impacts resulting from no progress through the summer months.	
Change Impact:	This change will impact the project deliverables. Requirements traceability matrix will require update. The project scope and schedule will require adjustment to reflect changed tasks. Project management plan and subsidiary plan documents will be updated to reflect this change. Project resources and budget are fixed and not impacted by this change.	
Need by Date:	Sept 28, 2014	
Functional Impact of Change:	Changes to research data analysis. Schedule configuration changes.	Project documents updates: • Project objectives, project name • WBS & project schedule configuration • PM Plan and subsidiary plans
Schedule Impact:	More work hours/day required to maintain project progress milestone and complete project deliverables.	**Cost Impact:** Negligible

Approved by:	***Roger Hull, Primary Advisor***
Initial:	
Reviewed by:	***Seong Dae Kim, Advisor Committee***
Initial:	
Reviewed by:	***LuAnn Piccard, Advisor Committee***
Initial:	

Change Control Form

Change Control – UAA Project Management Capstone Project		**#05**
Project Title:	**Project to Produce Construction Administration Documentation Protocols**	
Requestor Name:	Raymond O'Neill, Project Manager RONeill@Alaska.edu, (907) 351-2529	
Request Date:	Sept 19, 2014	
Change Description:	Schedule change Time to complete research and report writing tasks will require schedule adjustment to meet academic deadlines. PM686 objectives will be re-evaluated and updated in light of schedule constraints and impacts to project scope.	
Reason for Change:	Work was not done on previously scheduled activities during the summer months due to increase in other (paid) work.	
Change Impact:	This change will impact the project deliverables – proposed illustrations (matrices, flow charts, etc.) manual will be reduced or omitted. Requirements traceability matrix will require update. The project scope and schedule will require adjustment. Primary deliverables will be adjusted to reflect changes. Project documents will be updated to reflect this change. ***Project progress milestone PPM1 will have delayed elements.*** Project resources and budget are fixed and not impacted by this change.	
Need by Date:	Sept 28, 2014	
Functional Impact of Change:	Changes to research data analysis. Schedule configuration changes.	Project documents updates: • Project charter, project name • WBS & project schedule configuration • PM Plan and subsidiary plans
Schedule Impact:	More work hours/day required to maintain project progress milestone and complete project deliverables.	**Cost Impact:** Negligible

Approved by: ***Roger Hull, Primary Advisor***
Initial:

Reviewed by: ***Seong Dae Kim, Advisor Committee***
Initial:

Reviewed by: ***LuAnn Piccard, Advisor Committee***
Initial:

Change Control Form

Change Control – UAA Project Management Capstone Project		**#05**
Project Title:	**Project to Produce Construction Administration Documentation Protocols**	
Requestor Name:	Raymond O'Neill, Project Manager RONeill@Alaska.edu, (907) 351-2529	
Request Date:	Sept 19, 2014	
Change Description:	Schedule change Time to complete research and report writing tasks will require schedule adjustment to meet academic deadlines. PM686 objectives will be re-evaluated and updated in light of schedule constraints and impacts to project scope.	
Reason for Change:	Work was not done on previously scheduled activities during the summer months due to increase in other (paid) work.	
Change Impact:	This change will impact the project deliverables – proposed illustrations (matrices, flow charts, etc.) manual will be reduced or omitted. Requirements traceability matrix will require update. The project scope and schedule will require adjustment. Primary deliverables will be adjusted to reflect changes. Project documents will be updated to reflect this change. ***Project progress milestone PPM1 will have delayed elements.*** Project resources and budget are fixed and not impacted by this change.	
Need by Date:	Sept 28, 2014	
Functional Impact of Change:	Changes to research data analysis. Schedule configuration changes.	Project documents updates: • Project charter, project name • WBS & project schedule configuration • PM Plan and subsidiary plans
Schedule Impact:	More work hours/day required to maintain project progress milestone and complete project deliverables.	**Cost Impact:** Negligible
Approved by:	***Roger Hull, Primary Advisor***	
Initial:		
Reviewed by:	***Seong Dae Kim, Advisor Committee***	
Initial:		
Reviewed by:	***LuAnn Piccard, Advisor Committee***	
Initial:		

Change Control Form

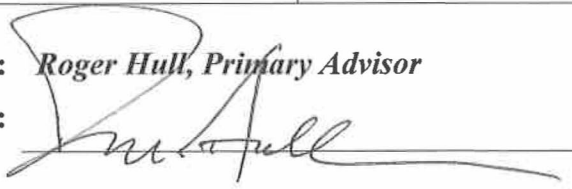
Change Control – UAA Project Management Capstone Project		**#03**
Project Title:	**Project to Produce Construction Administration Documentation Protocols**	
Requestor Name:	Raymond O'Neill, Project Manager RONeill@Alaska.edu, (907) 351-2529	
Request Date:	March 11, 2014	
Change Description:	Research methods are being changed. A planned survey of construction administration professionals is being removed from the description of research methods that will be used to meet project objectives. PM686 objectives are unchanged.	
Reason for Change:	Stakeholder analysis has determined that survey will likely not produce additional helpful data beyond the data expected to be obtained through the planned interviews. Resources available, based on schedule estimates for producing project deliverables, are not sufficient.	
Change Impact:	This is an impact to project scope and schedule configuration. Primary deliverables will be adjusted to reflect changes. Project documents will be updated to reflect this change. ***Project progress milestones are not changed.*** Project resources and budget are fixed and not impacted by this change.	
Need by Date:	March 12, 2014 (PPM#3- 2 days)	
Functional Impact of Change:	Changes to research methods and resources Schedule configuration changes	Project documents updates: • Project charter, project name • WBS & project schedule configuration • PM Plan
Schedule Impact:	No impact to delivery schedules	**Cost Impact:** Negligible

Approved by:	***Roger Hull, Primary Advisor***
Initial:	
Reviewed by:	***Seong Dae Kim, Advisor Committee***
Initial:	
Reviewed by:	***LuAnn Piccard, Advisor Committee***
Initial:	

Change Control Form

Change Control – UAA Project Management Capstone Project		**#02**
Requestor Name:	Raymond O'Neill, Project Manager RONeill@Alaska.edu, (907) 351-2529	
Request Date:	March 05, 2014	
Change Description:	Project scope being reduced. PM686 objectives are unchanged. Primary project deliverable will be ***documentation protocols for R&M's construction administration*** to support quality assurance, communications, and project integration. Previous scope statement included producing a QM manual to include quality planning, QA, and QC procedures.	
Reason for Change:	Resources available, based on schedule estimates for producing project deliverables, were not sufficient. The process of identifying project requirements made this apparent. Project sponsor's interest was determined to not include all of the aspects of quality management being considered in previous scope. Focusing the project on a smaller aspect of business operations will increase stakeholder engagement.	
Change Impact:	This is a significant impact to project scope and schedule configuration. Primary deliverables will be adjusted to reflect changes. ***Project progress milestones are not changed.*** Project resources and budget are fixed and not impacted by this change.	
Need by Date:	March 12, 2014 (PPM#3- 2 days)	
Functional Impact of Change:	Changes to research methods and resources Schedule configuration changes	Project documents updates: • Project charter, project name • WBS & project schedule configuration • Requirements documentation • Project scope statement • PM Plan
Schedule Impact:	No impact to delivery schedules	**Cost Impact:** Negligible

Approved by: ***Roger Hull, Primary Advisor***

Signature: 

Reviewed by: ***Seong Dae Kim, Advisor Committee***

Signature: 

Reviewed by: ***LuAnn Piccard, Advisor Committee***

Signature:

Change Control Form

Change Control – UAA Project Management Capstone Project			#01
Requestor Name:	Raymond O'Neill, Project Manager RONeill@Alaksa.edu, (907) 351-2529		
Request Date:	January 30, 2014		
Change Description:	This project's initiating processes indicate a need to reduce the project statement of work (SOW) thus impacting the project scope, project name/title, and the project plan Moving forward this project will provide construction administration quality assurance and quality control recommendations based on lessons learned during execution of construction projects for the Alaska Dept. of Transportation and Public Facilities (AKDOT). The new statement of work is expected to provide a reduced project scope		
Reason for Change:	Due to a lack of technical expertise and resources with regard to GIS technologies, the project statement of work is being changed. Time constraints have also been identified that require a reduction in the scope of work		
Change Impact:	PPM#1 deliverable due date delay from Jan. 31, 2014, 3:30 pm to Friday February 7, 2014, 3:30 pm		
Need by Date:	January 31, 2014		
Functional Impact of Change:	UAA Geomatics Dept. will no longer be a key stakeholder in this project AKDOT construction processes will be a primary reference		
Schedule Impact:	# Days: 6	**Cost Impact:**	Negligible
Approved by:	***Roger Hull, Primary Advisor***		Approved under the condition that all PPM#1 required deliverables, based on the revised scope, are complete and submitted on 7 February.
Signature:	Roger K. Hull		
Approved by:	***Seong Dae Kim, Advisor Committee***		
Signature:			
Approved by:	***LuAnn Piccard, Advisor Committee***		
Signature:			

Appendix L. Status Reports

One Page PM 686B Project Status Report Dashboard

Name: Raymond O'Neill Date: March 6, 2015

Project Title: Produce Recommendations for Updating AKDOT Construction Administration Documentation Manual

Synopsis of Project	**Progress Since Last Report**
What it's about and what it will deliver? **This project is about documenting construction administration.** **Recommendations for updating procedures are being produced.**	*Key tasks completed and key tasks started.* **PPM#2 submission partially late** **Beginning to fill in the Final Report**
Current Status XXX	**Forecast**
Where am I now? Am I on track to meet next PPM deliverables? **Data analysis continues.** **Expect more discussion with subject matter experts to be incorporated.** **Awaiting PPM#2 scores.** **My schedule is not functioning as an effective tracking and monitoring tool as it should and requires more attention.** **Knowledge area performance measures are lacking.**	*Is project tracking to next PPM and beyond towards project completion? (Big picture view)* **I have quite a bit of writing to do and I have inquiries and input from AKDOT to follow up on.** **Writing, editing , and reviews will be a priority.**
Anticipated Changes/Key Risks/Corrective Actions	**Key Takeaways/Where Help Needed**
Imminent change, risks/responses, and corrective actions/timing required to keep project on track. **No anticipated changes.** **Risk involves writing ability and increased commitment to working on the deliverable is critical.**	*Wrap up with key items and where help needed from stakeholders.* **Writing, editing , writing...** **Review of my writing by others ~~as a progress~~ with report editing will be helpful. .**

RECOVERED FROM DATA LOSS DUE TO SYNC ERROR

REHABILITATE my SCHEDULE REPAIR

MAY NEED ADDITIONAL LIT. REVIEW

SECTION IN BINDER – RECOMMENDATIONS ~~FOR~~ DELIVERABLE

RSCH RESULTS & ANALYSIS

GOLD PLATING

@ BOTTOM ~~OF~~ FOOTER

CONFIDENCE in DATA

CHARACTERIZE QUALITY OF DATA

DELPHI

One Page PM 686B Project Status Report Dashboard

Name: Raymond O'Neill Date: February 13, 2015

Project Title: Produce Recommendations for Documenting Construction Administration

Synopsis of Project	Progress Since Last Report
What it's about and what it will deliver? **This project is about improving how Alaska Dept. of Transp. documents construction administration.** **This project will deliver recommendations to the AKDOT construction documentation procedures manual.**	*Key tasks completed and key tasks started.* **Began looking at survey data collected in October to improve the analysis to support my recommendations which will be the project's primary deliverable.** **I've updated my project abstract and will get that out for review ahead of submission with PPM#2.** **I've begun updates to the project schedule.**
Current Status [redacted] XXX	**Forecast**
Where am I now? Am I on track to meet next PPM deliverables? **Only received 3 out of 5 points on PPM submission, so need to take action. This is one of my project's monitoring parameters.** **I need to update estimates of work in my schedule. EVM indictor is at 0.54** TO IMPROVE NEED STAKEHOLDER COMMUNICATION	*Is project tracking to next PPM and beyond towards project completion? (Big picture view)* **Will have another couple interviews to assist with analysis of survey data.** **Be diligent in scheduled tasks and recording progress toward project completion.** **Don't get too hung up on meeting/fitting progress to the estimates; instead apply change management process with stakeholder involvement.**
Anticipated Changes/Key Risks/Corrective Actions	**Key Takeaways/Where Help Needed**
Imminent change, risks/responses, and corrective actions/timing required to keep project on track. **No anticipated changes to the project scope** **Updates of work estimates need to be incorporated into the schedule.** **I overlooked my updated of the Student/Advisory Committee Expectations Contract and will get that on the record** **Migrating back up data resulted in duplication of ALL project files. Some document maintenance is required.** **Need to re-establish stakeholder contact with AKDOC – set appointment(s)**	*Wrap up with key items and where help needed from stakeholders.* **I need to start writing and getting sections into an review and editing process.** **Near completion. Will be adding to analysis of data collected in last semester's survey.** **I have administrative tasks to complete with the University, i.e. waivers for course deadlines.**

THE PATH OF MY PROJECT RESEARCH APPROACH — SEE PM JOURNAL

One Page PM 686B Project Status Report Dashboard

Name: Raymond O'Neill Date: January 23, 2015

Project Title: Produce Recommendations for Documenting Construction Administration

Synopsis of Project	Progress Since Last Report
What it's about and what it will deliver? **This project is about improving how Alaska Dept. of Transp. documents construction administration.** **This project will deliver recommendations to AKDOT procedures for documenting construction.** .	*Key tasks completed and key tasks started.* **My survey was completed successfully last semester and much of my analysis has been done.** **Will probably have another couple interviews to assist with analysis of survey data.** **I've begun updates to the project schedule.**
Current Status XXXX	**Forecast**
Where am I now? Am I on track to meet next PPM deliverables? **Execution of this project began last semester so I have a head start on these deliverables**	*Is project tracking to next PPM and beyond towards project completion? (Big picture view)* **Be diligent in scheduled tasks and recording progress toward project completion.** **Don't get too hung up on meeting/fitting progress to the estimates that have been established.**
Anticipated Changes/Key Risks/Corrective Actions	**Key Takeaways/Where Help Needed**
Imminent change, risks/responses, and corrective actions/timing required to keep project on track. **I'll be providing updates to risk management documents, schedule, knowledge areas focus, and GSP.** ~~CHECK IRB STATUS~~	*Wrap up with key items and where help needed from stakeholders.* **Near completion. Will be adding to analysis of data collected in last semester's survey.** **I have administrative tasks to complete with the University, including updates to GSP and waivers for course deadlines.**

- DOCUSIGN ONLINE SIGNATURES -

J. ABRAMS

OBJECTIVE STATEMENTS

HEAD OF SCHEDULE = ABILITY TO ~~ABSORB~~ RISK
→ DEMONSTRATE

100%

One Page PM 686B Project Status Report Dashboard

Name: Raymond O'Neill Date: October 24, 2014

Project Title: Produce Construction Administration Documentation Recommendations

Synopsis of Project	Progress Since Last Report
What it's about and what it will deliver? **This project is about documenting construction administration.** **Recommendations for updating procedures are being produced.**	*Key tasks completed and key tasks started.* **Survey and survey data analysis complete.** **Final report draft is begun.**
Current Status X	**Forecast**
Where am I now? Am I on track to meet next PPM deliverables? **Data analysis has been done** **Recent discussion with subject matter experts is being incorporated.** **PPM#2 was submitted late and scored less than 50% of pints.** **I will need to make more progress on writing in order to be on track to meet next PPM deliverables.**	*Is project tracking to next PPM and beyond towards project completion? (Big picture view)* **I have quite a bit of writing to do and I am still following up with inquiries and input from AKDOT.** **I am struggling with writing. I seem to be experiencing a "writer's block" where I spend time sitting with my paper but struggling to get the ideas and concepts down on the page.**
Anticipated Changes/Key Risks/Corrective Actions	**Key Takeaways/Where Help Needed**
Imminent change, risks/responses, and corrective actions/timing required to keep project on track. **No anticipated changes.** **Risk involves writing ability and increased commitment to working on the deliverable is critical.** **I'm going to seek out writing resources/workshops available here with the University**	*Wrap up with key items and where help needed from stakeholders.* **Without making progress on my writing and communicating my demonstration of knowledge areas there does not seem like there's assistance to be requested.**

One Page PM 686B Project Status Report Dashboard

Name: Raymond O'Neill Date: September 26, 2014

Project Title: Produce Construction Administration Documentation Protocols

Synopsis of Project	Progress Since Last Report
What it's about and what it will deliver? **This project is about documenting construction administration.** **A manual of documentation procedures will be produced.**	*Key tasks completed and key tasks started.* **Update to schedule indicates changes are required. I'm reporting a CPI of 0.91 but I don't think that's representative since I've saved this erroneous deadline.** **I've made some PM Plan updates.**
Current Status XXXX	**Forecast**
Where am I now? Am I on track to meet next PPM deliverables? **The original schedule produced last semester is still undergoing updates to mitigate the impact of a no-performance summer.** **PPM#1 is incomplete, especially the survey update and raw data.** **I have concern about my survey not being implemented yet. I expect to issue the survey I put together last semester within a week. I have had to do additional work to identify my sample since I am no longer with the original sponsor organization.**	*Is project tracking to next PPM and beyond towards project completion? (Big picture view)* **I think the progress method and change control process I've outlined for PPM #1 will serve to keep me on track.** **I'm behind with my survey. Expect to send out pilot Monday or Tuesday, and follow up with more survey the following week.**
Anticipated Changes/Key Risks/Corrective Actions	**Key Takeaways/Where Help Needed**
Imminent change, risks/responses, and corrective actions/timing required to keep project on track. I've uncovered pre-existing documents that were expected to serve the same purpose as the one I'm proposing. This is beneficial as it provides sources of information I'll need to meet requirements, but I don't want to just repeat previous work. May consider providing update to existing.	*Wrap up with key items and where help needed from stakeholders.* **I'll probably be needing advice on MS office application as I try to negotiate multiple/changing baselines.** **Have to be careful not to spend too much time playing with MS Project.**

Status Report and Project Management Plan Updates - September 19, 2014

Work was not performed as scheduled through the months of June, July and August due to changed priorities. This has a significant impact on the project schedule, pushing the project completion date out into March 2015 as shown in the updated Gantt chart (Gantt_PM686B_2014-09-19.pdf).

A baseline has been set for the current schedule. This will be used to demonstrate change management as schedule and scope changes are implemented in order to meet project completion within the academic calendar constraint.

Employment with R&M Consultants Inc. has been terminated. This is a significant change to the project sponsorship with impacts to the Stakeholder Management Plan (sec.4.9.1) and the Requirements Matrix (app.G). Use of the Stakeholders Circle® application has been discontinued at this time.

The following updates have been made to the PM Plan and will be made available in detail in the collaboration folders of Blackboard.

WBS

The following updates and corrections have been made to the WBS:

- Change *Interview CA Professionals* work package to *Survey CA Professionals.*
- Add *Review Existing Procedures Manuals/Policy Documents* as level 3 work package under *Identify AKDOT Requirements task.*
- Add *Update PM Plan* as level 4 work package under *Monitoring and Control* task.

Requirements

Updates to Requirements matrix consist of generalizing the stakeholders. Former sponsor and stakeholders has changed and the project outcome is intended for general application and not based specifically on R&M Inc.'s business requirements.

Risk Management

Sponsorship change has been an evaluated risk and the project's Risk Managmenet Plan (sec.4.7) provides mitigation measures that are being implemented.

Performance impacts are also identified in the Risk Register and prescribed measures will be implemented resulting in changes to the project schedule and/or scope.

The project's Risk Register (app.E) is being updated to reflect current project status.

Identified risk with beneficial outcome. Literature search for Department policies and procedures regarding documentation of construction activities uncovered a

Change Management

A Change Log (app.L) started last semester will continue to be used this semester.

One Page PM 686B Project Status Report Dashboard

Name: Raymond O'Neill Date: September 19, 2014

Project Title: Produce Construction Administration Documentation Protocols

Synopsis of Project	Progress Since Last Report
What it's about and what it will deliver? **This project is about documenting construction administration.** **A manual of documentation procedures will be produced.**	*Key tasks completed and key tasks started.* **Update to schedule indicates changes are required. I'm reporting a CPI of 0.91 but I don't think that's representative since I've saved this erroneous deadline.** **Some PM Plan updates have been made.**
Current Status X	**Forecast**
Where am I now? Am I on track to meet next PPM deliverables? **The original schedule produced last semester is still undergoing updates to mitigate the impact of a no-performance summer.** **PPM#1 is incomplete, especially the survey update and raw data.** **I have concern about my survey not being implemented yet. I expect to issue the survey I put together last semester within a week. I have had to do additional work to identify my sample since I am no longer with the original sponsor organization.**	*Is project tracking to next PPM and beyond towards project completion? (Big picture view)* **I think the progress method and change control process I've outlined for PPM #1 will serve to keep me on track.** **I also think that application of schedule management as demonstrated knowledge area is going to work well for me and for my project.**
Anticipated Changes/Key Risks/Corrective Actions	**Key Takeaways/Where Help Needed**
Imminent change, risks/responses, and corrective actions/timing required to keep project on track. I've uncovered pre-existing documents that were expected to serve the same purpose as the one I'm proposing. This is beneficial as it provides sources of information I'll need to meet requirements, but I don't want to just repeat previous work. May consider providing update to existing.	*Wrap up with key items and where help needed from stakeholders.* **I'll probably be needing advice on MS office application as I try to negotiate multiple/changing baselines. Have to be careful not to spend too much time playing with MS Project.**

One Page PM 686A Project Status Report Dashboard

Name: Raymond O'Neill Date: September 5, 2014

Project Title: Project to Produce a Procedures Manual for Documenting Construction Administration

Synopsis of Project	Progress Since Last Report
What it's about and what it will deliver? **This project is about improving the documentation of construction administration (CA) on Alaska DOT construction projects by producing a procedures manual describing how best to document construction administration.** **A procedures manual be produced based on AK DOT CA requirements.**	*Key tasks completed and key tasks started.* **Key tasks started include inventory of document requirements and listing of survey recipients.** HOW DO I KNOW HOW IT'S GOING — LOOK AT OBJECTIVES CHANGE MANAGEMENT — PROCESS FOR SCOPE CHANGE
Current Status xxxx	**Forecast**
Where am I now? Am I on track to meet next PPM deliverables? **Due to a summer work schedule being much more rigorous than expected, I am behind schedule.** **Stakeholder and sponsorship relationships have changed significantly. I am no longer employed with R&M.** **I've begun work on PPM#1 (due 9/19), but have concerns about the raw data from planned survey that I haven't yet executed.**	*Is project tracking to next PPM and beyond towards project completion? (Big picture view)* **Have not maintained the schedule over the past three months.** **Tasks associated with Interview of R&M staff are being removed from the schedule.** **The procedure manual content will be decreased – primarily the illustration of documentation procedures.**
Anticipated Changes/Key Risks/Corrective Actions	**Key Takeaways/Where Help Needed**
Imminent change, risks/responses, and corrective actions/timing required to keep project on track. **Changes include significant schedule impacts resulting over the summer.** **Corrective action will require a reduction in proposed content/scope for the procedures manual.**	*Wrap up with key items and where help needed from stakeholders.* **I need to update my schedule and work on completing PPM#1 requirement.** **I'll need help producing and executing a survey of AK DOT construction staff.**

APPLICATION & MEASUREMENT OF SUCCESS K-A.'S
PLAN FOR RESPONSE VOLUME

One Page PM 686A Project Status Report Dashboard

Name: Raymond O'Neill Date: March 28, 2014

Project Title: Project to Produce a Procedures Manual for Documenting Construction Administration

Synopsis of Project	Progress Since Last Report
What it's about and what it will deliver? **This project is about quality in construction administration, and a contribution to my firm's quality management program.** **This has become a project to produce a procedures manual for documenting construction administration for our primary client AKDOT.** **A Procedures Manual will be produced.**	*Key tasks completed and key tasks started.* **I've completed requirements gathering for now.** **Research materials are being gathered.** **Stakeholder support continues to be sought to better define and refine project scope details.**
Current Status XXX X	**Forecast**
Where am I now? Am I on track to meet next PPM deliverables? **Working to fill some gaps in my PM Plan I continue to be trying to catch up.** **Started outlining for my presentation.** **I submitted to IRB yesterday and hope that won't cause any delays.**	*Is project tracking to next PPM and beyond towards project completion? (Big picture view)* **I spent allot of time changing project documents and trying to define requirements and my PM Plan and subsidiary plans still need work.** **Biggest challenge once caught up is staying on top of the schedule.** **Sponsorship has not been helpful.**
Anticipated Changes/Key Risks/Corrective Actions	**Key Takeaways/Where Help Needed**
Imminent change, risks/responses, and corrective actions/timing required to keep project on track. **Allot of changes in direction is now settling down into a baseline scope I'll be able to manage progress and future changes against.** **I need to schedule more time nearing the next PPM.**	*Wrap up with key items and where help needed from stakeholders.* **Stakeholder management to turn manager's interest on to my work.** **Accurate estimate of working time for schedule continues to be a challenge.** **Documenting changes and updating project documents has been the bulk of my work.**

One Page PM 686A Project Status Report Dashboard

Name: Raymond O'Neill Date: March 21, 2014

Project Title: Project to Produce a Procedures Manual for Documenting Construction Administration

Synopsis of Project	Progress Since Last Report
What it's about and what it will deliver? **This project is about quality in construction administration, and a contribution to my firm's quality management program.** **This has become a project to produce a procedures manual for documenting construction administration for our primary client AKDOT.** **A Procedures Manual will be produced.**	*Key tasks completed and key tasks started.* **I've completed requirements gathering for now And have a** **Research materials are being gathered.** **Stakeholder support is being sought to better define and refine project scope, i.e. choose QM procedure to define for R&M**
Current Status XXX X	**Forecast**
Where am I now? Am I on track to meet next PPM deliverables? **Still working on my PM Plan and submitted a first draft today, so I continue to be trying to catch up.** **I've begun the IRB cert. training and will likely complete that this weekend.** **I can have a complete PM plan**	*Is project tracking to next PPM and beyond towards project completion? (Big picture view)* **I spent allot of time changing project documents and trying to define requirements and my PM Plan and subsidiary plans still need work.** **Biggest challenge once caught up is staying on top of the schedule.**
Anticipated Changes/Key Risks/Corrective Actions	**Key Takeaways/Where Help Needed**
Imminent change, risks/responses, and corrective actions/timing required to keep project on track. **Allot of changes in direction is now settling down into a baseline scope I'll be able to manage progress and future changes against.** **I need to schedule more time nearing the next PPM.**	*Wrap up with key items and where help needed from stakeholders.* **Stakeholder management to turn manager's interest on to my work.** **Accurate estimate of working time for schedule continues to be a challenge.** **Documenting changes and updating project documents has been the bulk of my work and not very fruitful.**

One Page PM 686A Project Status Report Dashboard

Name: Raymond O'Neill Date: February 28, 2014

Project Title: Project to Produce a Quality Management Manual for Construction Administration

Synopsis of Project	Progress Since Last Report
What it's about and what it will deliver? **This project is about quality in construction administration, and a contribution to my firm's quality management program.** **This project will document procedures for meeting quality planning, quality assurance and quality control requirements for our primary client AKDOT.** **A Quality Management Manual will be produced.**	*Key tasks completed and key tasks started.* **Key tasks completed – project documents required for project initiation and project planning have been established, i.e. requirements matrix, stakeholder register, project charter, etc.** **Research materials are being gathered.** **Stakeholder support is being sought to better define and refine project scope, i.e. choose QM procedure to define for R&M**
Current Status XX XX	**Forecast**
Where am I now? Am I on track to meet next PPM deliverables? **I'm in the process of defining changes to the scope. A complete QM manual is to large of a scope based on requirements gathering and initial review of organizational assets, i.e. lack of documented procedures.** **I think I'm on track to have a draft PM Plan for 3/14 along with the other PPM deliverables.**	*Is project tracking to next PPM and beyond towards project completion? (Big picture view)* **PM Plan and subsidiary plans need considerable amount of work.** **I feel I have a pretty good vision for the project but need to define in project documentation.** **Biggest challenge once caught up is staying on top of the schedule.**
Anticipated Changes/Key Risks/Corrective Actions	**Key Takeaways/Where Help Needed**
Imminent change, risks/responses, and corrective actions/timing required to keep project on track. **I hope to turn a high probability risk identified at the onset into an opportunity for greater stakeholder involvement. The reduced change in scope expects to target a specific aspect of CA that will be of greater interest to project sponsors and decision makers that have access to expert knowledge and resources.**	*Wrap up with key items and where help needed from stakeholders.* **Stakeholder management to turn manager's interest on to my work.** **Accurate estimate of working time for schedule has been biggest challenge.** **Documenting changes and producing plans will be the bulk of my work for the remainder of the semester.**

GET DOT SPONSORSHIP

LEARN CONST. MANAGER

One Page PM 686A Project Status Report Dashboard

Name: Raymond O'Neill Date: March 28, 2014

Project Title: Project to Produce a Procedures Manual for Documenting Construction Administration

Synopsis of Project	Progress Since Last Report
What it's about and what it will deliver? **This project is about quality in construction administration, and a contribution to my firm's quality management program.** **This has become a project to produce a procedures manual for documenting construction administration for our primary client AKDOT.** **A Procedures Manual will be produced.**	*Key tasks completed and key tasks started.* **I've completed requirements gathering for now.** **Research materials are being gathered.** **Stakeholder support continues to be sought to better define and refine project scope details.**
Current Status XXX X	**Forecast**
Where am I now? Am I on track to meet next PPM deliverables? **Working to fill some gaps in my PM Plan I continue to be trying to catch up.** **Started outlining for my presentation.** **I submitted to IRB yesterday and hope that won't cause any delays.**	*Is project tracking to next PPM and beyond towards project completion? (Big picture view)* **I spent allot of time changing project documents and trying to define requirements and my PM Plan and subsidiary plans still need work.** **Biggest challenge once caught up is staying on top of the schedule.** **Sponsorship has not been helpful.**
Anticipated Changes/Key Risks/Corrective Actions	**Key Takeaways/Where Help Needed**
Imminent change, risks/responses, and corrective actions/timing required to keep project on track. **Allot of changes in direction is now settling down into a baseline scope I'll be able to manage progress and future changes against.** **I need to schedule more time nearing the next PPM.**	*Wrap up with key items and where help needed from stakeholders.* **Stakeholder management to turn manager's interest on to my work.** **Accurate estimate of working time for schedule continues to be a challenge.** **Documenting changes and updating project documents has been the bulk of my work.**

One Page PM 686A Project Status Report Dashboard

Name: Raymond O'Neill Date: March 21, 2014

Project Title: Project to Produce a Procedures Manual for Documenting Construction Administration

Synopsis of Project	Progress Since Last Report
What it's about and what it will deliver? **This project is about quality in construction administration, and a contribution to my firm's quality management program.** **This has become a project to produce a procedures manual for documenting construction administration for our primary client AKDOT.** **A Procedures Manual will be produced.**	*Key tasks completed and key tasks started.* **I've completed requirements gathering for now And have a** **Research materials are being gathered.** **Stakeholder support is being sought to better define and refine project scope, i.e. choose QM procedure to define for R&M**
Current Status XXX X	**Forecast**
Where am I now? Am I on track to meet next PPM deliverables? **Still working on my PM Plan and submitted a first draft today, so I continue to be trying to catch up.** **I've begun the IRB cert. training and will likely complete that this weekend.** **I can have a complete PM plan**	*Is project tracking to next PPM and beyond towards project completion? (Big picture view)* **I spent allot of time changing project documents and trying to define requirements and my PM Plan and subsidiary plans still need work.** **Biggest challenge once caught up is staying on top of the schedule.**
Anticipated Changes/Key Risks/Corrective Actions	**Key Takeaways/Where Help Needed**
Imminent change, risks/responses, and corrective actions/timing required to keep project on track. **Allot of changes in direction is now settling down into a baseline scope I'll be able to manage progress and future changes against.** **I need to schedule more time nearing the next PPM.**	*Wrap up with key items and where help needed from stakeholders.* **Stakeholder management to turn manager's interest on to my work.** **Accurate estimate of working time for schedule continues to be a challenge.** **Documenting changes and updating project documents has been the bulk of my work and not very fruitful.**

One Page PM 686A Project Status Report Dashboard

Name: Raymond O'Neill Date: February 28, 2014

Project Title: Project to Produce a Quality Management Manual for Construction Administration

Synopsis of Project	Progress Since Last Report
What it's about and what it will deliver? **This project is about quality in construction administration, and a contribution to my firm's quality management program.** **This project will document procedures for meeting quality planning, quality assurance and quality control requirements for our primary client AKDOT.** **A Quality Management Manual will be produced.**	*Key tasks completed and key tasks started.* **Key tasks completed – project documents required for project initiation and project planning have been established, i.e. requirements matrix, stakeholder register, project charter, etc.** **Research materials are being gathered.** **Stakeholder support is being sought to better define and refine project scope, i.e. choose QM procedure to define for R&M**
Current Status XX XX	**Forecast**
Where am I now? Am I on track to meet next PPM deliverables? **I'm in the process of defining changes to the scope. A complete QM manual is to large of a scope based on requirements gathering and initial review of organizational assets, i.e. lack of documented procedures.** **I think I'm on track to have a draft PM Plan for 3/14 along with the other PPM deliverables.**	*Is project tracking to next PPM and beyond towards project completion? (Big picture view)* **PM Plan and subsidiary plans need considerable amount of work.** **I feel I have a pretty good vision for the project but need to define in project documentation.** **Biggest challenge once caught up is staying on top of the schedule.**
Anticipated Changes/Key Risks/Corrective Actions	**Key Takeaways/Where Help Needed**
Imminent change, risks/responses, and corrective actions/timing required to keep project on track. **I hope to turn a high probability risk identified at the onset into an opportunity for greater stakeholder involvement. The reduced change in scope expects to target a specific aspect of CA that will be of greater interest to project sponsors and decision makers that have access to expert knowledge and resources.**	*Wrap up with key items and where help needed from stakeholders.* **Stakeholder management to turn manager's interest on to my work.** **Accurate estimate of working time for schedule has been biggest challenge.** **Documenting changes and producing plans will be the bulk of my work for the remainder of the semester.**

One Page PM 686A Project Status Report Dashboard

Name: Raymond O'Neill Date: February 7, 2014

Project Title: Draft Quality Management Manual for Construction Administration

Synopsis of Project	Progress Since Last Report
What it's about and what it will deliver? **This project is about quality in construction administration, and a contribution to my firm's quality management program.** **Quality management will be presented as quality planning, quality assurance and quality control.** **A Quality Management Manual will be produced.**	*Key tasks completed and key tasks started.* **I've got the required sponsorship, i.e. the letter, and my GSP is good to go. PPM#1 has just been submitted late.** **I think I have a really good stakeholder register started and that this will be helpful to keep improving my understanding and approach to my stakeholders.**
Current Status XXXX	**Forecast**
Where am I now? Am I on track to meet next PPM deliverables? **I've had to institute a significant change due to organizational assets and the availability of expert technical resources.** **I've gone form a project to introduce GIS into construction administration to a more foundational project goal of identifying and documenting quality standards for the Construction administration department.**	*Is project tracking to next PPM and beyond towards project completion? (Big picture view)* **I just submitted my preliminary schedule. Due to the significant change authorized last week I am delayed about one week and I definitely have some catching up to the PPMs.** **I feel I have a pretty good vision for the project and can get caught up.** **Biggest challenge once caught up is staying on top of the schedule.**
Anticipated Changes/Key Risks/Corrective Actions	**Key Takeaways/Where Help Needed**
Imminent change, risks/responses, and corrective actions/timing required to keep project on track. **Changes to the project title from Draft Manual to System – not a big deal, more semantics than anything.** **A risk can be foreseen with regard to the scope of QC elements in our work and defining QC responsibilities within a manual. There may need to be a scope reduction to address a single aspect of QC, or to generalize the subject in this first draft.**	*Wrap up with key items and where help needed from stakeholders.* **The organizational culture is tradition-based and not easily excited about new prospects or academic endeavor. I'm having trouble getting paid for this work and I'm negotiating a specific wage for my time contribution to the firm.** **This is a lot of work! I've had more than few stars at this process and so hope I can get it done this year.**

Capstone Project Charter

Prepared for UAA Master of Science in Project Management (MSPM)
PM686A
Roger Hull, Advisor

1. General Information

Project Name:	**Project to Produce recommendations for updates to the AKDOT Construction Project Documentation Manual**
Supporting Departments:	University of Alaska Anchorage (UAA) Master of Science in Project Management Program (MSPM); ~~R&M Consultants, Inc. Construction Administration Department~~
Prepared By:	Raymond O'Neill
Preparation Date:	February 3, 2014 Updated 10/10/14
Authorized By:	Roger Hull, UAA Advisor

Project Charter Revisions

Version Number	Revision Date	Revision Notes	Reviewed by (initials)		
2	2/3/2014	SOW changed from GIS Research to CA Quality Manual			
3	2/10/2014	Scope reduced to CA Documentation Protocols	Roger Hull	LuAnn Piccard	
4	3/19/2014	Deliverable changed to Documentation Procedures Manual.	Roger Hull		
5	4/10/2014	Submitted in Appendix B of Final Project Management Plan April 15, 2014.			
6	10/10/2014	The final project deliverable is changed to Recommendations for Updating the AKDOT *Construction Project Documentation* procedures manual. R&M Sponsorship canceled			

3. Project Objectives

Goals	Project Objectives
Produce a standards manual for CA documentation procedures appropriate for use by R&M on AKDOT transportation infrastructure construction projects.	• Review AKDOT manuals for construction to inventory CA documentation requirements. • Literature review of industry best practices in construction administration documentation ~~• Interview R&M's CA professionals to:~~ ~~✓ Determine current tools and techniques for documenting CA~~ ~~✓ Identify gaps in documentation quality~~ ~~✓ Solicit recommendations for CA documentation~~ • Interview AKDOT construction professionals to ✓ Identify best practices in documenting CA ✓ Ensure AKDOT requirements will be met • **Produce recommendations to** a procedures manual for CA documentation that: ~~✓ Illustrates documentation procedures~~ ✓ Defines documentation protocols
Produce a successful University of Alaska Anchorage (UAA) Capstone Project in the Master of Science in Project Management (MSPM) curriculum	• Meet the requirements of PM686A & B curriculum as established in the course syllabus • Demonstrate project management mastery • Apply focused demonstration of the following Project Management Knowledge areas: ✓ Project Scope Management ✓ Project Communication Management ✓ Project Risk Management • Contribute to the Project Management Body of Knowledge

4. Project Scope

4.1. Project Results

This project will result in **recommendations for** an improved set of documentation protocols defined and illustrated in a procedures manual applicable to administration of AKDOT construction projects – primarily roadways and airports.

This project will demonstrate project management mastery and will meet the academic requirements of the UAA PM686 curriculum. This project will represent a contribution to the project management body of knowledge.

4.5. Assumptions

- ~~R&M managers will be available as a resource of information regarding current documentation protocols within the firm and within AKDOT~~
- AKDOT will be available as a resource of information regarding current documentation practices
- A literature review and interviews will provide meaningful data and information for developing improved protocols for documenting construction administration
- The scope of work is feasible given the project manager's capacity to complete the project on schedule and with necessary scope changes.

4.6. Constraints

- The primary project constraint is the schedule consistent with the UAA PM686 academic schedule
- ~~Access to R&M organizational assets for this project may be limited and subject to change based on business or client needs~~
- ~~R&M is interested in an expanded client base; however, this~~ project is limited to the services provided to their primary client, AKDOT
- The first draft of protocols may require revision and updates. This project will not include implementation of new protocols

5. Project Critical Success Factors

- Project management planning and documentation
  - ✓ Complete, concise and up to date
- Research planning
  - ✓ Scheduling
  - ✓ Appropriate scope and topic
- Sufficient identification and review of relevant industry related literature
  - ✓ Keywords, sources and citations
- Participation of CA professionals in survey and interviews
  - ✓ Response rate, participation
  - ✓ Critical feedback
- Relevant analysis of the research outcomes
  - ✓ Defensible
  - ✓ Qualified and quantified
- Timely completion of all project deliverables
  - ✓ Schedule performance
- Passing scores at project progress performance milestones (PPMs)

6. Initial High-level Project Planning

Review of R&M quality initiatives, quality reviews, and procedures documents.

Begin review off AKDOT Construction Manual.

An initial literature review indicates access to extensive construction administration and project management literature through the UAA Consortium online journal databases, and key words are being identified for this research.

R&M sponsorship and resources have been sought for several months.

A review of PM686A requirements was completed January 17, and the Blackboard system is set up as a tool for communications and to provide course information.

7. Project Authority

7.1. Authorization

This project has been authorized by ~~R&M's CA Group Manger and~~ the leadership of the UAA PM Department academic advisory team.

7.2. Project Manager

Raymond O'Neill, EIT

7.3. Oversight (Steering) Committee

Roger Hull, UAA PM Primary Academic Advisor
LuAnn Picard, UAA PM Advisory Committee
Seong Dae Kim, UAA PM Advisory Committee

8. Management Checkpoints

- PM6886A and PM686B syllabus project progress performance milestones (PPMs)
- Scheduled peer status updates
- Project management plan and research plan completion
- Final report and presentation

Additional management checkpoints may be required as the project progresses.

9. Signatures

Name/Title	Signature	Date
Raymond O'Neill, UAA Student		
Roger Hull, UAA Academic Advisor		
Paul Hetzel, R&M CA Program Manager		

Appendix C. Sponsor Letters

R&M CONSULTANTS, INC.
9101 Vanguard Drive
Anchorage, Alaska 99507

February 3, 2014

University of Alaska Anchorage
Department of Project Management
University Center, Room 155
3901 Old Seward Highway
Anchorage, AK 99503

Attn: Academic Advisor Roger Hull

Re: Letter of support for UAA Capstone Project – Draft Construction Administration Quality Management Program Manual.

Dear Mr. Hull,

This letter is provided in support of Raymond O'Neill's research and proposed project plan to produce a draft quality management manual for construction administration. The manual will be aimed at meeting the quality standards for highway, airport and marine construction contracts for the Alaska Department of Transportation and Public Facilities, our primary construction administration client.

We agree that Raymond's work has the potential to bring value to our firm's construction administration services.

Paul B. Hetzel, P.E.
Vice President - Construction Administration
R&M CONSULTANTS, INC.

cc: Meuy E Saechao, UAA Administrative Support

Please provide other information about your experience, training, education and level of expertise with regard to documenting construction administration.

Answer Options	Response Count		
	50		
answered question		**50**	**61%**
skipped question		**32**	

Number	Response Date	Response Text	Categories
1	10/10/14	worked on construction project in material testing and reporting to Office Engineer	
2	10/9/14	I spent 5 years as an Office Engineer Technical skills can be learned by almost anyone, if you have the right people and process providing training and mentoring. Soft skills: the ability to articulate what is important, why, provide transparency, having a solid level of emotional intelligence, and knowing what values drive conduct and culture in a workplace (etc.) - those are the things that generate a distinction between a successful project, and an exceptional one (or an exceptional workplace). Any technician can learn to fill out a form, or apply specific methods to a situation. ▯ ▯	
3	10/7/14	On a side note - this is a completely broad question. I'm not sure I can respond in a way that supplies what is needed for your desired outcome or research needs.	
4	10/7/14	Rec'd in house training on construction administration issues.	
5	10/7/14	Professional Engineer, have attended DOT construction administration course several time. Additionally, have attended the Federal Highways admin course. I have been with DOT for about 8 years now and have served as the Concurrent Review Engineer for the last year and a half. I oversee Northern Region's construction projects to provide assurance that the records are in accordance with contract requirements and Department procedures. Prior to this position, I was a design engineer and an EIT (Engineer in Training) and in addition to construction and design, I have worked in the Department's environmental and geotechnical departments. I trained in concurrent review as an EIT and with the former Concurrent Review Engineer for a total of about 5 months before accepting this	
6	10/7/14	position. Most of my training for the duties of this position, like learning to interpret contract language and apply the region's Construction Manual, has been on the job.	
7	10/7/14	On the job experience	
8	10/7/14	As a consultant we routinely keep certifications current. WAQTC, Traffic Control, SWPPP, ect.	
9	10/7/14	I have been in Project Management in the private sector 5 yrs and with the state 25 yrs. My education consists of an engineering Bachelors Degree and many specialized training classes for various aspects of the Civil Engineering. Construction documentation is part of good field inspection.	
10	10/7/14	No training for documenting administration.	
11	10/7/14	My experience with documentation is limited to materials and the materials summary in the specifications.	
12	10/6/14	BSCE, A short, basic training regarding how to document was in the 1980's, which I still have notes from. Lately, the training has focused on learning how to run Site Manager also, an Office Engineer handbook was produced last year. I am with the AKDOT almost 30 years worked on Highway, Airport, and other construction projects.▯ These project required everyday documentation and testings on asphaltic material, concrete placement, soil placement and etc. My level of traing mostly coming from the Department of Transportation such as ATTSA, Construction Contracting Warrant, Mine Safety, Radiological Safety, Asphalt Concrete Pavements, Material Control & Acceptance-Quality Management, Soils & Foundations Workshop, Practical Approaches for Effective Erosion and Sediment Control, How to Control Erosion and Establish Vegetation on Steep Slopes, Hazwoper Awareness-Operations Level,Management Training in Consent Building Strategies,Yearly Project Engineer's Meeting, Yearly Spring Training (in house), Yearly Environmental Expo. ...etc.▯	
13	10/6/14	I obtained a professional engieer's license and CEBS. Multiple years (7) of technician work/training both on site and in the lab working from a entry level Lab Technitian to the Lead Materials Inspector showed the importance of the Documentation. Then with two seasons as an Engineering Assistant I/II working both as the Office Engineer/Assistant Project Engineer and the	
14	10/6/14	On site Lead Inspector/Grade boss gave the challenge of managing and coordinating technicians in the field so that proper documentation could be achieved.	
15	10/6/14	Background in Materials	
16	10/6/14	Please define construction admin better.	
17	10/6/14	NHI coursed related to contract administration in the field.	
18	10/6/14	My past jobs had a lot of documenting of work performed, plus I've had some good OTJ training when I first started with DOT.	
19	10/6/14	I worked for the AKDOT for 32 years, retiring as the Regional Construction Engineer. I now work for a Consulting Firm.	
20	10/6/14	Master of Arts Degree in Teaching	
21	10/6/14	I don't have any, I've only been here 2 months. My job is mostly to review plans, specifications, and estimates prior to advertising and during advertising to catch any mistakes made in design.	
22	10/6/14	I am a registered profession civil engineer with 40 years of experience in the design and construction of public funded project for the State of Alaska. Over those years I have attended many seminars, workshops, conferences and lead ship training focused on the delivery and construction oversight and administration of civil/marine projects.	
23	10/6/14	Learning to use Citrix to fill out Daily Work Reports.	
24	10/6/14	Some Contract Law classes, Construction Scheduling Software training.	
25	10/6/14	I have been involved with construction for six years and a storm water specialist for four years. Since working in storm water, our sections, statewide, has put forth a concerted effort to move to digital filing systems. Training is ongoing and I do training as well. I have a BS in Civil Engineering and a PE license.	
26	10/6/14	attended source document/audit classes through Northern Region employees	
27	10/6/14	Over 24 years working on federal and state funded construction projects, starting as a technician and advancing to project engineer, with project amounts varying from two million to thirty-five million. I've partaken in numerous trainings & certifications, including but not limited to storm water inspection lead training, worksite traffic supervisory training, hazardous materials training, construction claims resolution training, supervisory training, etc.	
28	10/6/14	I took a surveying class in high school and immediately was hired on a state construction survey crew. The project engineer cross trained employees to do inspection and office engineering. I later became an asssitant project engineer, but filled the role of the project engineer when needed. The position of the concurrent review engineer was a natural move since I had been doing the work in the field.	
29	10/6/14	15 years at DOT with the last 12 in the Construction Section. 10 years as a Project Manager and the last 1.5 years as the Regional Construction Engineer.	
30	10/6/14	Most of education regarding documenting construction administration has been on-the-job training provided by senior project staff.	
31	10/6/14	I worked as a grade inspector for 30 years and gained the experience needed to become a project engineer. I have taken writing classes to help with change orders and directives. This was very useful.	
32	10/6/14	specific NHI courses regarding documentation of construction contract work.	
33	10/4/14	most of my experience with dot has been in materials. documentation precision for sampling and testing is vital for a quality product. we make documentation of everything we do. including weighing aggregate before and after washing them or running them through our gilsons or rotap machines. After testing another qualified personel double checks the work performed. then all documentation is copied, put into job summaries, sent to rovers, and our project engineers. we document everything. Aggregate testing, troxler tests, asphalt burns.. everything.	
34	10/4/14	I have experience in many roles and on many projects. We do not focus training on documentation but it is somehow involved in most construction orientated training.	
35	10/4/14	Employed by DOT from 1975 through 1985 as a Seasonal Technician, 1985 through 1991 as an Engineering Assistant, and from 1991 through present as a Project Engineer.	
36	10/4/14	15 years doing grade and bridge inspection. DOT training in office documentation and project engineer documentation. Masers Degree in Arctic Engineering. BS-Technology▯ ASU CE Program: two years of schooling.▯ Worked on contractor side of administration for three years.▯	
37	10/4/14	School of hard knocks. (Learn from others mistakes).	
38	10/3/14	OTJT, school of hard knocks	
39	10/3/14	DOT Highway COnstructioon for the last 38 seasons. last 24 years as Project Engineer.	
40	10/3/14	Materials testing and it's Documentation from conducting the tests to checking results with specifications.	
41	10/3/14	We get in-house training (anually) on for project documention on a regular basis.	
42	10/3/14	AK DOT annual Spring Fling. Be a project engineer for about 11 years.	
43	10/3/14	Attended an Audit Training Session through a Northern Region employee specializing in Auditing and project documentation for 2 days. With my experience, having great documentation through Daily Reports, source documents, and photos helps out in case of claims, etc.	
44	10/3/14	niche documentation, atypical to Dept SOPs	
45	10/3/14	Worked 4 years as Project Engineer/Office Engineer, and helped QA reviewing project files during closeout in winters. All my experience is from on job training by other experienced staff.	
46	10/3/14	The DoT uses mostly OJT and a few days after signing on to instruct on documentation for new techs and interns. Prior education and experience is limited. Interns with engineering experience are often a liability because they do not have construction experience. Techs hired through the union are often more reliable with less liability.	
47	10/3/14	I had initially started as a consultant with a private sector company a couple years ago working on an airport project. I am now working for the AKDOT and have leaned through my job how to fill out forms and to track necessary paperwork to fulfill necessary testing frequencies on projects.	
48	10/3/14	4 seasons as an office engineer. most all training was OJT. very little training was structured. I have Civil Engineering Degree.▯	
49	10/2/14	WAQTC, SWPPP, Traffic Supervisor Certs.	
50	10/1/14	Writing down as much information as possible to accurately depict the construction activities is the ultimate goal	

Please provide other information about your experience, training, education and level of expertise with regard to documenting construction administration.

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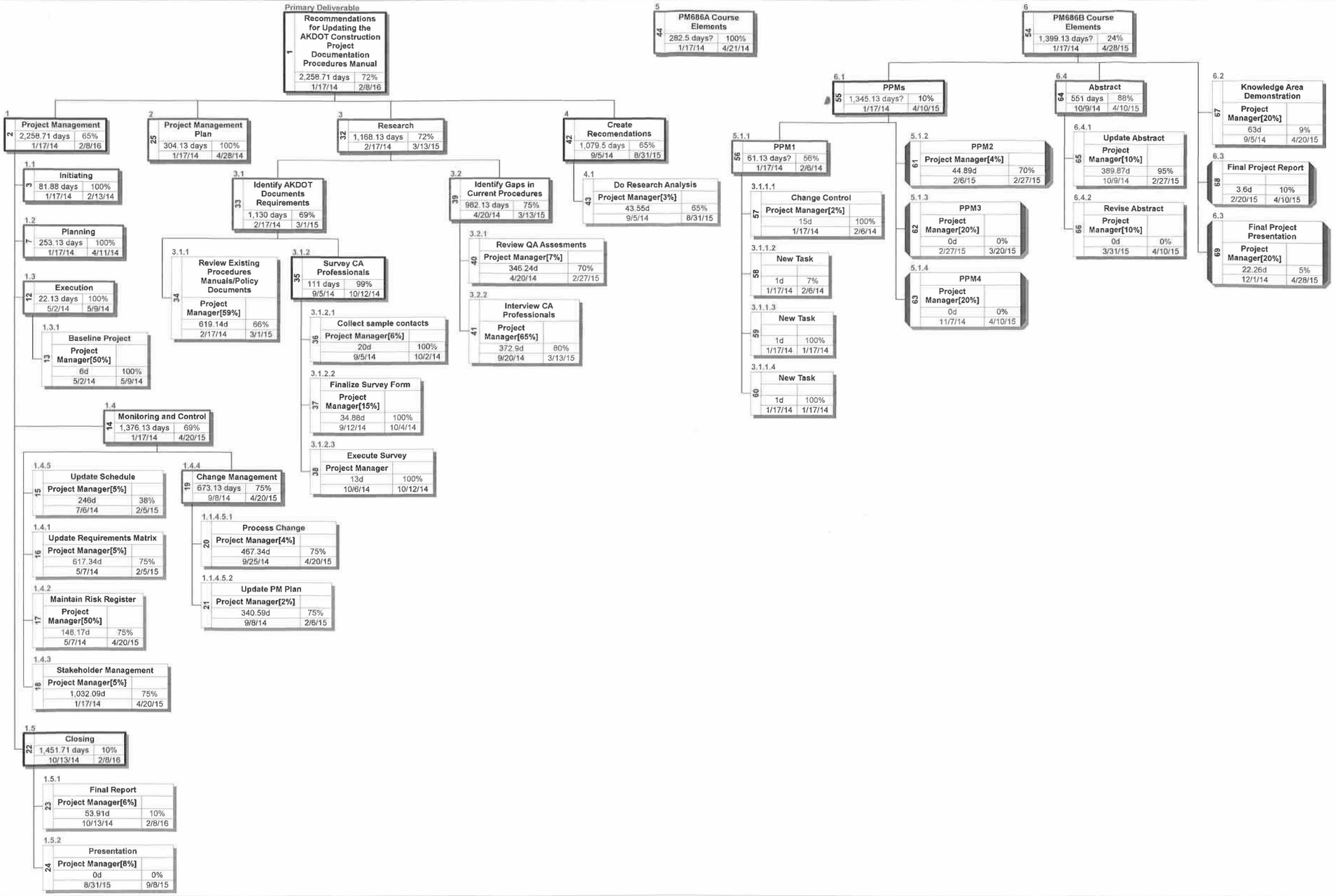
45	10/3/14	Worked 4 years as Project Engineer/Office Engineer, and helped QA reviewing project files during closeout in winters. All my experience is from on job training by other experienced staff.	
46	10/3/14	The DoT uses mostly OJT and a few days after signing on to instruct on documentation for new techs and interns. Prior education and experience is limited. Interns with engineering experience are often a liability because they do not have construction experience. Techs hired through the union are often more reliable with less liability.	
47	10/3/14	I had initially started as a consultant with a private sector company a couple years ago working on an airport project. I am now working for the AKDOT and have leaned through my job how to fill out forms and to track necessary paperwork to fulfill necessary testing frequencies on projects.	
48	10/3/14	4 seasons as an office engineer, most all training was OJT, very little training was structured. I have Civil Engineering Degree.▯	
49	10/2/14	WAQTC, SWPPP, Traffic Supervisor Certs.	
50	10/1/14	Writing down as much information as possible to accurately depict the construction activities is the ultimate goal	

Raymond O'Neill - Project Manager | **Roger Hull - Academic Advisor**

UAA PM686B - Spring 2015

Recommended Updates to AKDOT Construction Documentation Procedures Manual

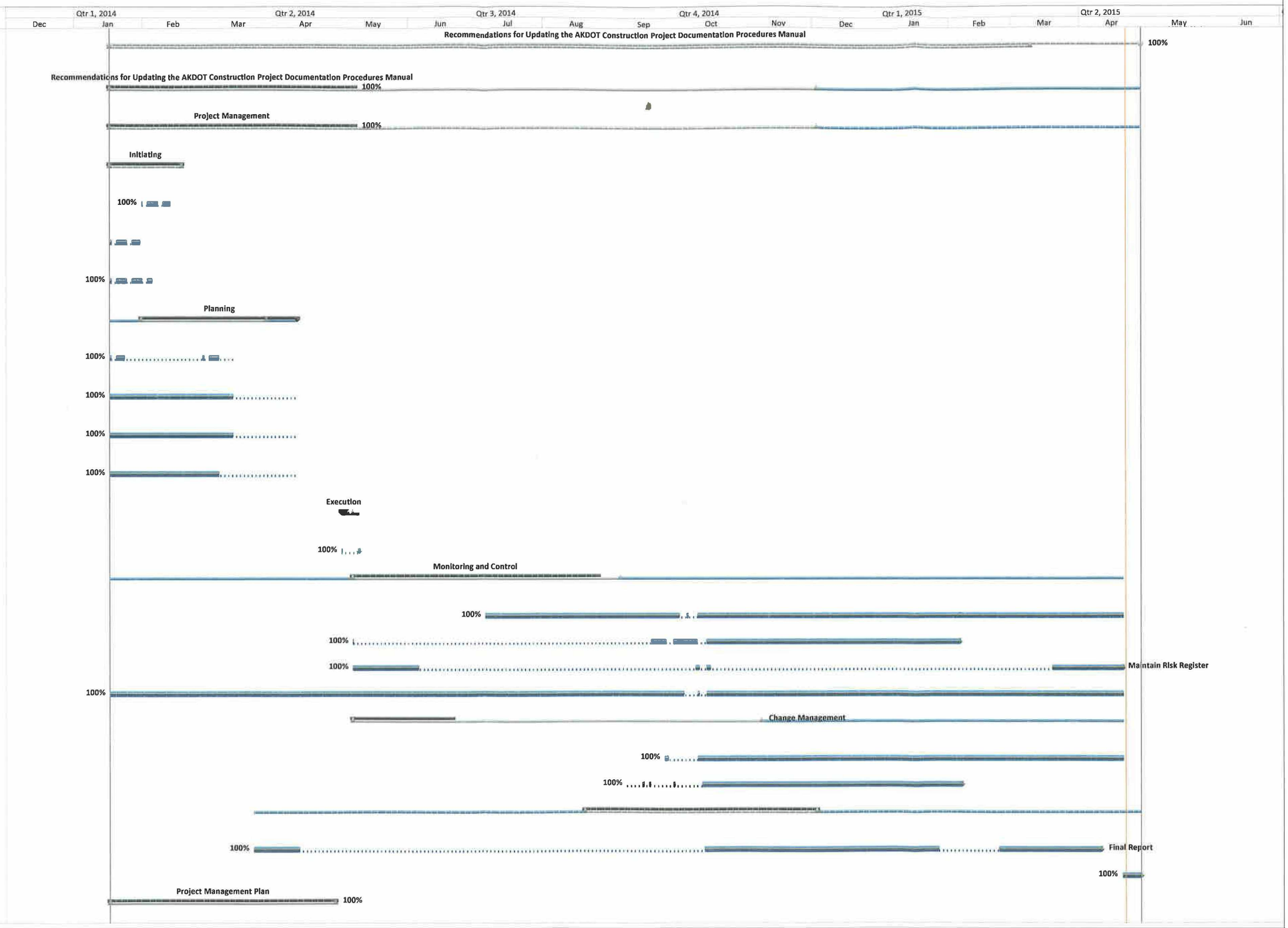


March 12, 2015

Critical Task | Critical Milestone | Critical Summary | Noncritical Task | Noncritical Milestone | Noncritical Summary | External Task

Capstone Project to Produce a Procedures Manual for Documenting Construction Administration
100% Complete

ID	Task Name	% Complete
0	**Recommendations for Updating the AKDOT Construction Project Documentation Procedures Manual**	**100%**
1	**Recommendations for Updating the AKDOT Construction Project Documentation Procedures Manual**	**100%**
2	**Project Management**	**100%**
3	**Initiating**	**100%**
4	Establish Risk Register	100%
5	Project Charter	100%
6	Establish Stakeholder Register	100%
7	**Planning**	**100%**
8	Establish Requirements Matrix	100%
9	Create WBS	100%
10	Create Project Schedule	100%
11	Stakeholder Identification and Analysis	100%
12	**Execution**	**100%**
13	Baseline Project	100%
14	**Monitoring and Control**	**100%**
15	Update Schedule	100%
16	Update Requirements Matrix	100%
17	Maintain Risk Register	100%
18	Stakeholder Management	100%
19	**Change Management**	**100%**
20	Process Change	100%
21	Update PM Plan	100%
22	**Closing**	**100%**
23	Final Report	100%
24	Presentation	100%
25	**Project Management Plan**	**100%**



Capstone Project to Produce a Procedures Manual for Documenting Construction Administration
100% Complete

ID	Task Name	% Complete
26	**Scope Management Plan**	**100%**
27	Change Management Plan	100%
28	Requirements Management Plan	100%
29	Communications Management Plan	100%
30	Risk Management Plan	100%
31	Stakeholder Management Plan	100%
32	**Research**	**100%**
33	**Identify AKDOT Documents Requirements**	**100%**
34	Review Existing Procedures Manuals/Policy Documents	100%
35	**Survey CA Professionals**	**100%**
36	Collect sample contacts	100%
37	Finalize Survey Form	100%
38	Execute Survey	100%
39	**Identify Gaps in Current Procedures**	**100%**
40	Review QA Assesments	100%
41	Interview CA Professionals	100%
42	**Create Recomendations**	**100%**
43	Do Research Analysis	100%
44	**PM686A Course Elements**	**100%**
54	**PM686B Course Elements**	**100%**
55	**Abstract**	**100%**
58	Final Project Report	100%
59	Final Project Presentation	100%